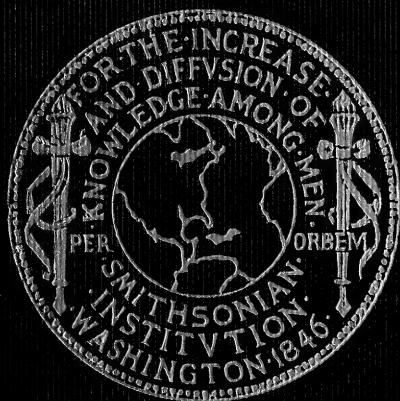


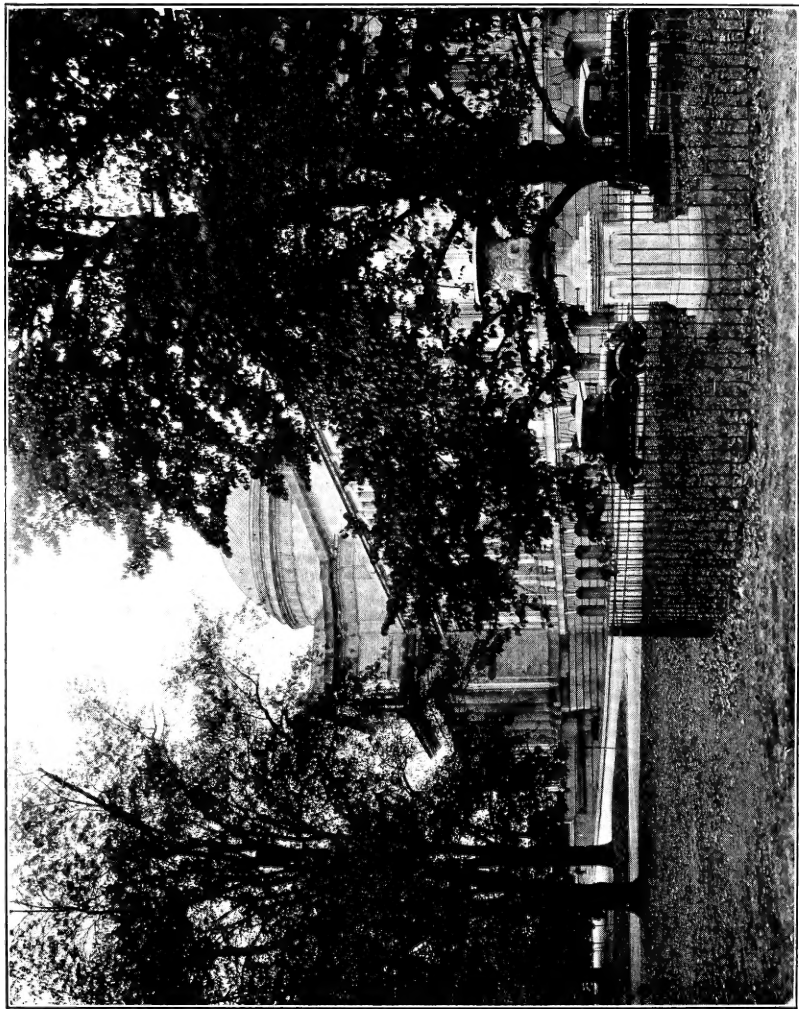
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FRONT VIEW OF NATURAL HISTORY BUILDING, UNITED STATES NATIONAL MUSEUM

Also showing the Downing memorial.

SMITHSONIAN INSTITUTION
UNITED STATES NATIONAL MUSEUM

REPORT ON THE PROGRESS
AND CONDITION OF THE UNITED STATES
NATIONAL MUSEUM FOR THE YEAR
ENDED JUNE 30, 1930



UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1930

THE NATIONAL BUREAU OF INVESTIGATION
UNITED STATES DEPARTMENT OF JUSTICE

REPORT ON THE ACTIVITIES
AND OPERATIONS OF THE
NATIONAL ASSOCIATION
FOR THE ADVANCEMENT
OF COLORED PEOPLE

BY
SPECIAL AGENT IN CHARGE
W. A. RORER

UNITED STATES NATIONAL MUSEUM,
UNDER DIRECTION OF THE SMITHSONIAN INSTITUTION,
Washington, D. C., October 15, 1930.

SIR: I have the honor to submit herewith a report upon the present condition of the United States National Museum and upon the work accomplished in its various departments during the fiscal year ended June 30, 1930.

Very respectfully,

ALEXANDER WETMORE,
Assistant Secretary.

Dr. CHARLES G. ABBOT,
Secretary, Smithsonian Institution.

I have the honor to acknowledge the receipt of your letter of the 10th inst. in relation to the matter mentioned therein. I have the honor to inform you that the same has been forwarded to the proper authorities for their consideration. I am, Sir, very respectfully,
Your obedient servant,
J. D. [Name]

Very respectfully,
J. D. [Name]

J. D. [Name]
[Address]

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STAFF OF UNITED STATES NATIONAL MUSEUM

[June 30, 1930]

CHARLES G. ABBOT, Secretary of the Smithsonian Institution, keeper *ex officio*.
ALEXANDER WETMORE, Assistant Secretary, Smithsonian Institution, in charge
United States National Museum.
WILLIAM DE C. RAVENEL, Administrative Assistant to the Secretary.

SCIENTIFIC STAFF

DEPARTMENT OF ANTHROPOLOGY:

Walter Hough, head curator; W. H. Egberts, chief preparator.

Division of Ethnology: Walter Hough, curator; H. W. Krieger, curator;
H. B. Collins, jr., assistant curator; Arthur P. Rice, collaborator; Isobel
H. Lenman, collaborator.

Section of Musical Instruments: Hugo Worch, custodian.

Section of Ceramics: Samuel W. Woodhouse, collaborator.

Division of American Archeology: Neil M. Judd, curator; R. G. Paine, aid.

Division of Physical Anthropology: Aleš Hrdlička, curator; Thomas D.
Stewart, aid.

Collaborator in anthropology: George Grant MacCurdy.

Collaborator in Old World archeology: J. Townsend Russell, jr.

Associate in historic archeology: Cyrus Adler.

DEPARTMENT OF BIOLOGY:

Leonhard Stejneger, head curator; James E. Benedict, assistant
curator; W. L. Brown, chief taxidermist.

Division of Mammals: Gerrit S. Miller, jr., curator; Remington Kellogg,
assistant curator; A. J. Poole, scientific aid; A. Brazier Howell, collaborator.

Division of Birds: Herbert Friedmann, curator; Charles W. Richmond,
associate curator; J. H. Riley, assistant curator; Alexander Wetmore,
custodian of alcoholic and skeleton collections; Edward J. Brown, col-
laborator; Casey A. Wood, collaborator; Arthur C. Bent, collaborator.

Division of Reptiles and Batrachians: Leonhard Stejneger, curator; Doris
M. Cochran, assistant curator.

Division of Fishes: Barton A. Bean, assistant curator; E. D. Reid, aid.

Division of Insects: L. O. Howard, honorary curator; J. M. Aldrich, asso-
ciate curator; William Schaus, honorary assistant curator; B. Preston
Clark, collaborator.

Section of Hymenoptera: S. A. Rohwer, custodian; W. M. Mann,
assistant custodian; Robert A. Cushman, assistant custodian.

Section of Myriapoda: O. F. Cook, custodian.

Section of Diptera: J. M. Aldrich, in charge; Charles T. Greene,
assistant custodian.

Section of Coleoptera: L. L. Buchanan, specialist for Casey collection
of coleoptera.

DEPARTMENT OF BIOLOGY—Continued.

Division of Insects—Continued.

Section of Lepidoptera: J. T. Barnes, collaborator.

Section of Orthoptera: A. N. Caudell, custodian.

Section of Hemiptera: W. L. McAtee, acting custodian.

Section of Forest Tree Beetles: A. D. Hopkins, custodian.

Division of Marine Invertebrates: Waldo L. Schmitt, curator; C. R. Shoemaker, assistant curator; James O. Maloney, aid; Mrs. Harriet Richardson Searle, collaborator; Max M. Ellis, collaborator; William H. Longley, collaborator; Maynard M. Metcalf, collaborator; Joseph A. Cushman, collaborator in Foraminifera.

Division of Mollusks: Paul Bartsch, curator; William B. Marshall, assistant curator; Mary Breen, collaborator.

Section of Helminthological Collections: C. W. Stiles, custodian; M. C. Hall, assistant custodian.

Division of Echinoderms: Austin H. Clark, curator.

Division of Plants (National Herbarium): Frederick V. Coville, honorary curator; W. R. Maxon, associate curator; Ellsworth P. Killip, associate curator; Emery C. Leonard, assistant curator; Conrad V. Morton, aid; Egbert H. Walker, aid; John A. Stevenson, custodian of C. G. Lloyd Mycological Collection.

Section of Grasses: Albert S. Hitchcock, custodian.

Section of Cryptogamic Collections: O. F. Cook, assistant curator.

Section of Higher Algae: W. T. Swingle, custodian.

Section of Lower Fungi: D. G. Fairchild, custodian.

Section of Diatoms: Albert Mann, custodian.

Associates in Zoology: C. Hart Marriam, W. L. Abbott, Mary J. Rathbun, David Starr Jordan.

Associate Curator in Zoology: Hugh M. Smith.

Associate in Marine Sediments: T. Wayland Vaughan.

Collaborator in Zoology: Robert Sterling Clark.

DEPARTMENT OF GEOLOGY:

R. S. Bassler, head curator; Margaret W. Moodey, aid.

Division of Physical and Chemical Geology (systematic and applied): W. F. Foshag, curator, Edward P. Henderson, assistant curator.

Division of Mineralogy and Petrology: F. W. Clarke, honorary curator; W. F. Foshag, curator; Frank L. Hess, custodian of rare metals and rare earths.

Division of Stratigraphic Paleontology: Charles E. Resser, curator; Jessie G. Beach, aid.

Section of Invertebrate Paleontology: T. W. Stanton, custodian of Mesozoic collection; Paul Bartsch, curator of Cenozoic collection.

Section of Paleobotany: David White, associate curator.

Division of Vertebrate Paleontology: Charles W. Gilmore, curator; James W. Gidley, assistant curator of mammalian fossils; Norman H. Boss, chief preparator.

Associate in Mineralogy: W. T. Schaller.

Associate in Paleontology: E. O. Ulrich.

Associate in Petrology: Whitman Cross.

DEPARTMENT OF ARTS AND INDUSTRIES, AND DIVISION OF HISTORY:

William deC. Ravenel, director.

Divisions of Mineral and Mechanical Technology: Carl W. Mitman, curator; F. A. Taylor, assistant curator; Paul E. Garber, assistant curator; Fred C. Reed, scientific aid; Chester G. Gilbert, honorary curator of mineral technology.

Division of Textiles: Frederick L. Lewton, curator; Mrs. E. W. Rosson, aid.

Section of Wood Technology: William N. Watkins, assistant curator.

Section of Organic Chemistry: Aida M. Doyle, aid.

Division of Medicine: Charles Whitebread, assistant curator.

Division of Graphic Arts: R. P. Tolman, assistant curator.

Section of Photography: A. J. Olmsted, custodian.

Loeb Collection of Chemical Types: O. E. Roberts, jr., curator.

Division of History: T. T. Belote, curator; Charles Carey, assistant curator;

Mrs. C. L. Manning, philatelist.

ADMINISTRATIVE STAFF

Chief of correspondence and documents, H. S. Bryant.

Superintendent of buildings and labor, J. S. Goldsmith.

Editor, Marcus Benjamin.

Engineer, C. R. Denmark.

Disbursing agent, N. W. Dorsey.

Photographer, A. J. Olmsted.

Property clerk, W. A. Knowles.

Assistant librarian, Leila G. Forbes.

REPORT OF THE PROGRESS AND CONDITION OF THE UNITED STATES NATIONAL MUSEUM FOR THE YEAR ENDED JUNE 30, 1930

By ALEXANDER WETMORE

Assistant Secretary, Smithsonian Institution

FOREWORD

The Congress of the United States in the act of August 10, 1846, founding the Smithsonian Institution, recognized that an opportunity was afforded, in carrying out the design of Smithson for the increase and diffusion of knowledge, to provide for the custody of the Museum of the Nation. To this new establishment was, therefore, intrusted the care and development of the national collections. At first the cost of maintaining this activity was paid from the Smithsonian income; then for a time the Government bore a share; but since 1877 Congress has provided for the expenses of the Museum.

The museum idea was fundamental in the organic act establishing the Smithsonian Institution, which was based upon a 12-year discussion in Congress and the advice of the most distinguished scientific men, educators, and intellectual leaders of the Nation during the years 1834 to 1846. It is interesting to note how broad and comprehensive were the views which actuated the Congress in determining the scope of the Museum, a fact especially remarkable when it is recalled that at that date no museum of considerable size existed in the United States, and the museums of England and of the continent of Europe, although containing many rich collections, were still to a large extent without a developed plan.

The Congress which passed the act of foundation enumerated as within the scope of the Museum "all objects of art and of foreign and curious research and all objects of natural history, plants, and geological and mineralogical specimens belonging to the United States," thus indicating the Museum at the very outset as the Museum of the United States and as one of the widest range in its

activities. It was appreciated that additions would be necessary to the collection then in existence, and provision was made for their increase by the exchange of duplicate specimens, by donations, and by other means.

The maintenance of the Museum was long ago assumed by Congress, the Smithsonian Institution taking upon itself only so much of the necessary responsibility for its administration as is required to coordinate it with its other activities. The Museum as a part of the Smithsonian is an integral part of a broad organization for increase and diffusion of knowledge, for scientific research, for cooperation with departments of the Government, with universities and scientific societies in America, and with all scientific institutions and men abroad who seek interchange of views with men of science in the United States.

Since 1846 the only material changes in the scope of the National Museum have been (1) the addition of a department of American history, intended to illustrate, by an appropriate assemblage of objects, important events, the domestic life of the country from the colonial period to the present time, and the lives of distinguished personages, and (2) provision, in 1920, for the separate administration of the National Gallery of Art as a coordinate unit under the Smithsonian Institution. From 1906 to 1920 the gallery was administered as the department of fine arts of the Museum.

The development of the Museum has been greatest in those subjects which the conditions of the past three-quarters of a century have made most fruitful—the natural history, geology, ethnology, and archeology of the United States, which have been supplemented extensively by collections from other countries of the world. Opportunities for acquisition in these various directions in the first years of the institution were mainly brought about through the activities of the scientific and economic surveys of the Government, many of which have been the direct outgrowths of earlier explorations stimulated or directed by the Smithsonian Institution. Additions from these sources still continue in large volume. As supplemental to them an increasing number of persons interested in science make annual additions to our collections either directly or through financial support of expeditions by members of the staff. The increment of material from these contributions increases annually and is greatly appreciated. Such outside aid brings material that is of the greatest importance and that often could be obtained in no other way.

The Centennial Exhibition of 1876 afforded opportunity for establishing a department of industrial arts, which has received great impetus recently through the cooperation of industrial firms and

associations, particularly in the assembling of material illustrative of historical development in various lines.

The historical series has been greatly augmented since 1918 by large collections illustrative of the World War, and also by extensive additions to exhibits in aircraft and kindred subjects that have been received during this period.

Public interest in the growth and development of the National Museum is reflected by the steady increase of recorded attendance, in correspondents, and in requests for information.

OPERATIONS OF THE YEAR

APPROPRIATIONS

Provision for the maintenance of the United States National Museum for the fiscal year ended June 30, 1930, was made by appropriations carried in the executive and independent offices act approved February 20, 1929, as follows:

Preservation of collections.....	\$570,084
Furniture and fixtures.....	33,240
Heating and lighting.....	90,160
Building repairs.....	21,080
Books.....	2,000
Postage.....	450
Printing and binding.....	45,500
	<hr/>
	762,514

The appropriations for 1930 exceeded those for 1929 by \$14,490, of which \$9,500 was to provide salaries for five additional workers, namely, for an assistant curator of mollusks, an additional clerk in the administrative office, and for three sergeants of the watch. The assistance in personnel has very definite value in the administration of the various units concerned and brings added efficiency to the organization as a whole.

The increases further provided money for the construction of a gallery to give additional space for the study collections in the vertebrate paleontological laboratory where crowding had become severe. A smaller sum permitted efficiency promotions for trained mechanics who had not been cared for properly when other classes of employees were promoted previously.

The second deficiency bill for 1930 contained an item of \$3,500 for repairs and alterations of buildings available in the fiscal years 1930 and 1931 for the remodeling of a comfort room in the Arts and Industries Building. As this bill became a law on July 3, 1930, after the close of the fiscal year here under report, these funds were accordingly made available for 1931, and statement on them will be made in the report for that year.

The Congress during this year gave definite consideration to the question of additional housing for the collections of the National Museum with the result that the Smoot-Elliott bill authorizing the extension of the Natural History Building, through wings at the east

and west ends at a cost of \$6,500,000 was passed without a dissenting vote. The bill was approved by the President on June 19, 1930. Under this authorization it is planned to add to the present building so that it will extend from Ninth to Twelfth Street, in general duplicating the present structure, where the ground floor and third floor are given over to offices and laboratories, and the two intermediate floors are devoted to exhibitions. It is contemplated to ask for funds for the preparation of the definite architect's designs and detailed plans in the urgent deficiency bill for 1931. The interested consideration given to the important matter of the authorization for this work by the congressional committees concerned has been deeply appreciated by the institution. Final completion of the construction involved will provide adequately for housing needs in one direction, leaving space for arts and industries and history for subsequent consideration.

The question of further additions to personnel remains one of importance, as there is continued necessity for additional workers, both on the scientific staff and in the clerical forces. The National Museum, through the many years of its growth, has developed along broad lines and maintains extensive collections in many branches. There are several groups of animals where large collections are available with no specialist immediately in charge, a condition that should be remedied. Further, there are divisions where assistants should be provided for older men now in charge, who should be in a position to train others to carry on when they themselves are gone. Clerical assistance is at a minimum when the volume of work to be covered is considered, and there is need for more employees of this group to relieve scientific workers of routine work in cataloguing and thus permit them to devote their time more fully to important scientific investigations. It is now necessary annually to procure the temporary services of additional cataloguers, typists, and laborers to assist in our regular work. These persons should be on the permanent rolls as the work required is specialized and requires considerable training for proper performance, which it is not possible to give in a period of temporary employment. The gradual increase in staff that has come in the past three years has assisted materially in promoting our work, but additional employees in a number of places are still urgently needed.

Existing appropriations are taken up so largely with necessary routine expenditures that there is little available to be used in exploration and field work. Many friends and correspondents make great additions to our collections annually, but the Museum should be provided with adequate funds that would enable it to develop various field researches along logical and continuing lines. There come to the Museum frequent reports of valuable specimens that may be had if some one competent can go to the spot to obtain them.

These are usually of such nature that they can not be collected and sent in by the inexperienced, as unless properly handled they are not worth the cost of transportation, though when suitably prepared they are highly valuable. At the present time this material is usually lost, though for a comparatively small expenditure it might be preserved. Funds that may be used for such purposes and for field work in general are urgently needed.

It may be added that in the United States to-day there is an annually increasing part of the population that is definitely interested in science. This is shown in the present demand for authentic scientific news on the part of the press, for photographs of interesting scientific objects for publication, and by the general attitude of the public. As our country grows there come additions to the group of those financially independent who turn to scientific researches and investigations either as recreation or with serious desire to assist in addition to human knowledge, and who find in scientific matters relaxation and inspiration, recreation and serious endeavor. This group now assists tremendously in the furtherance of scientific development and will be an increasing force in that direction in the future. These persons from their financial situation make large contributions toward the Federal income in the form of taxes, wherefore it would seem logical to make a part of the money derived from them available for support of their immediate interests in the form of increased appropriations for the National Museum.

COLLECTIONS

Growth in the collections for the present fiscal year has brought extensive and valuable additions to all of the departments of the Museum. The increments were covered under 1,683 separate accessions, which included 410,815 separate objects.

The specimens indicated were divided among the various departments as follows: Anthropology, 9,013; biology, 355,308; geology, 36,937; arts and industries, 5,227; history, 4,330. The total increase for last year came to 545,191 specimens.

It will be noted from the above that the largest additions came in the department of biology as has been the case in other previous years. Of especial note among these there may be mentioned extensive collections received as the gift of the National Geographic Society, including particularly birds and plants collected by Joseph F. Rock in western China, and birds, insects, and plants obtained by E. G. Holt in northern Brazil. Other excellent collections came from the Hon. Gifford Pinchot as a result of a cruise to the Caribbean and Pacific islands on the yacht *Mary Pinchot*. A notable collection obtained through the cooperation of the Navy Department was

secured by Dr. H. C. Kellers, United States Navy, on the island of Panay in the Philippines during service as medical officer to the naval solar eclipse expedition. Large series of mollusks obtained by Paul Bartsch in the West Indies are of great importance, as is the collection of helminthological specimens presented by Dr. G. A. MacCallum.

In the department of anthropology collections from Nigeria and the Gold and Ivory Coasts of West Africa presented by Mr. C. C. Roberts, include many valuable objects not previously represented in the Museum. There may be mentioned also a large collection from New Guinea gathered by Dr. E. W. Brandes during an expedition as plant explorer for the Bureau of Plant Industry, United States Department of Agriculture. From Alaska there came long series of implements of ivory manufactured by ancient Eskimo tribes collected by Dr. Aleš Hrdlička and Mr. Henry B. Collins, jr., traveling under funds supplied by the Smithsonian Institution.

The single specimen having the highest importance during the year has been the great crystal ball presented to the National Museum for the department of geology by Mrs. Worcester Reed Warner as a memorial to her husband, long a friend of the Smithsonian Institution. This ball of flawless crystal, $12\frac{7}{8}$ inches in diameter, weighing $106\frac{3}{4}$ pounds, is believed to be the largest perfect crystal sphere in existence. The Shepard collection of minerals received as a loan in 1899 was during the year turned over definitely for our collections. It possesses considerable historic value in the more than 5,000 specimens that it contains. Through the income from the Roebling fund there has come much material of the finest and most desirable quality.

In the Department of Arts and Industries the gift of the Rudolf Eickemeyer collections of photographs and books to the section of photography is of great importance not only for the excellence of the pictorial material for which Mr. Eickemeyer has been awarded 61 medals and cups, but also for the fact that Mr. Eickemeyer has made provision in his estate for an endowment to accompany it. The collection adds measurably to our historical material of the kind indicated.

In the division of mineral technology the collection of Edward Goodrich Acheson memorabilia recording the researches of this gifted worker, presented by the Acheson Oildag Co., has given important historical material. A similar gift to the division of mechanical technology has been a collection of models, drawings, and documents relating to the industrial development of the steam boiler, presented by the Babcock & Wilcox Co., of New York City, through its president, Mr. A. G. Pratt.

In the division of history there came some silverware formerly owned by Thomas McKean, one of the signers of the Declaration of Independence, presented by Mrs. Francis T. Redwood, and five pieces of chinaware used in the White House by President James Madison presented by Miss Mary M. McGuire.

During the year there were received 1,306 lots of material for examination and report, the larger part being geological and botanical in nature, and including a large aggregation of individual specimens. Part of this material was returned by request to the senders after being identified and a part was retained as an addition to our collections.

Gifts of specimens to schools and other educational organizations included 11,474 specimens, among which were 14 sets of mollusks consisting of 149 specimens each; 6 sets to illustrate rock-weathering and soil formation of 12 to 16 individual specimens each; 33 sets of rocks, ores, and minerals of 83 specimens each; 6 sets of fishes numbering 55 specimens, and 1 set of 132 specimens. Exchanges of duplicate material with other institutions and individuals amounted to 12,649 specimens, with the addition of 430 pounds of sinter. Loans to workers outside of Washington reached the total of 33,208 specimens. The handling of all this material involves considerable labor on the part of the staff in the selection of the specimens wanted, in packing for shipment, and in the unpacking and checking over when loan material is returned.

The following statement of specimens now covered in the Museum catalogues will be of interest:

Anthropology -----	685, 754
Biology -----	9, 336, 073
Geology -----	2, 052, 357
Arts and industries -----	103, 224
History -----	394, 911
	<hr/>
Total -----	12, 572, 319

EXPLORATIONS AND FIELD WORK

Researches in the field have been carried on as usual by various members of the scientific staff of the Museum principally by means of funds provided by the Smithsonian Institution through its private income, with assistance in some instances by contributions from friends of the organization who have been interested in different projects. Certain investigations have been financed also under some of the specific funds of the Smithsonian. Limited assistance in some cases has been given from the annual appropriations, which has advanced the work but which has been only a small part of the total expenditure for these purposes, by far the greater portion having come from other sources. Additional appropriation that

could be utilized for these purposes is a definite need of the National Museum, and would be of great assistance in promoting our work. A brief account of field work for the present year follows:

During the months of December and January, Henry B. Collins, jr., assistant curator in the division of ethnology, conducted field work in Mississippi, the investigations being carried on in cooperation with the Mississippi Department of Archives and History, that organization being represented by Messrs. Moreau B. Chambers and James A. Ford. The most important result was the finding in Yazoo County of an ancient Indian village site in which the complete floor plan of a large house site was traced by means of the post holes. The structure was round, 60 feet in diameter, and was probably a council house somewhat similar to those described by early explorers in the Creek and Cherokee regions. The opening of the fiscal year in July found Mr. Collins in the field excavating at old Eskimo sites on the island of St. Lawrence in Bering Sea, and along the coast of Kotzebue Sound in western Alaska. His work included a reconnaissance of the western Alaskan coast from Norton Sound to Point Hope. Actual excavations were carried on at Cape Kialegak on St. Lawrence Island, Cape Denbigh, Imaruk Basin, and Point Hope, resulting in a large archeological collection. Work on St. Lawrence Island was begun again in June, 1930, with most important results, as indicated by preliminary reports from the field. The National Museum is deeply indebted to the Revenue Cutter Service for its active cooperation in these investigations through transportation provided on its vessels to points otherwise inaccessible.

Field work in the Dominican Republic was continued by Herbert W. Krieger, curator in the division of ethnology who began archeological and historical studies in that area in 1928. Mr. Krieger's investigations were made possible by the assistance of Dr. W. L. Abbott, whose interest in the island is of long standing and whose first visit to Santo Domingo was in 1883. Investigations during the current year included a reconnaissance of the mountainous interior of the Provinces of La Vega and of Azua, and actual excavations at former Indian village sites in the Valley of Constanza and on the Caribbean coast at Andres, on the Bay of Andres, 25 miles east of the capital city of Santo Domingo. There was no noteworthy distinction between the artifacts recovered from middens at Constanza and at Andres except for the lack of marine products such as bones of fish and of turtle, and shells of mollusks in the middens of the central mountains. Shell deposits on the Caribbean coast resemble those found in caves in the Province of Samana, and also resemble those included in the kitchen middens of Monte Cristi Province. Middens, then, through the Dominican Republic yield typically Arawakan objects of great variety, ranging from the petal-

oid polished stone celt, decorated pottery with incised and punctate designs, and molded figurine heads of postarchaic type, to the beveled celt of *Strombus gigas*, shallow undecorated earthenware bowls, crude beads of shell with hourglass-shape perforation, and other artifacts that in Cuba have been designated as products of the "Ciboney." Frontal-occipital deformation of skulls from cemeteries, fragments of stone collars, and well-known types of Arawak zemis supply additional evidence of the thorough penetration of the island by the Arawak, and conversely tend to stress the lack of cultural stratigraphy or the previous occupancy of the island by pre-Arawak tribes.

From May 15 to September 23, 1929, N. M. Judd, the curator of American archeology was in Arizona supervising the third Beam expedition of the National Geographic Society. As a result of these investigations Dr. A. E. Douglass, of the University of Arizona, was able to complete his tree-ring chronology by establishing a single series of annual growth rings in pine trees, extending from the year 1929 back to 700 A. D. Thus, with over 1,200 years represented, some 40 pre-Spanish Pueblo villages of the Southwest have been correlated with our own calendar—certainly the most outstanding contribution to American archeology in the past quarter century. Following his researches for the National Geographic Society, the curator, at the suggestion of Senator Carl Hayden, visited the Gila and Salt River Valleys, Ariz., to examine remaining vestiges of a former network of prehistoric canals and to determine the most feasible means of preserving a permanent record of them. On behalf of the Bureau of American Ethnology Mr. Judd returned to Arizona in mid-January to cooperate with Lieut. Edwin B. Bobzien and Sergt. R. A. Stockwell, of the Army photographic personnel in an aerial survey of the major prehistoric canal systems bordering both the Gila and Salt Rivers. The mosaic photographic maps made from the air resulting from this survey, though not yet completely studied, indicate results of high importance.

Doctor Hrdlička, curator of physical anthropology, during the summer of 1929 made his second expedition to Alaska. The work of the present season covered the Yukon from White Horse to Fort Yukon as a reconnaissance, and from Fort Yukon downward continued as an intensive exploration in abandoned and partly washed away village sites resulting in valuable collections of skeletal remains and archeological implements. Physical measurements were made on several hundred living natives, some of them the last representatives of their tribes, and facial casts and hundreds of photographs were taken.

Dr. Paul Bartsch through the Walter Rathbone Bacon scholarship fund of the Smithsonian Institution continued this season an

exploration of West Indian Islands for study of their terrestrial molluscan fauna, a work begun last year. He left Norfolk, Va., in June, 1929, for Porto Rico where at San Juan a schooner, the *Guilhermito*, was chartered. Doctor Bartsch was accompanied by Dr. William W. Hoffman and his assistant J. Oliver who were engaged in other biological studies. The work began on Porto Rico and then continued to Culebra and St. Thomas. On July 14 the party visited the island of St. John and on the 15th St. Croix. Stops were next made at Tortola, San Martin, Anguilla, San Bartholomew, St. Eustatius, St. Christopher, Nevis, Montserrat, and Grande Terre. On July 31 they had reached Guadeloupe, and August 1 and 2 were on the Saints. They next visited Maria Galante and Dominica, and August 7 and 8 were at Martinique. This was followed by exploration of Santa Lucia, St. Vincent, and on 17 of the Grenadine Islets. The expedition arrived at Grenada on August 25 and remained there until the 28th. September 1 to 4 were spent on Trinidad. Margarita Island, off the Venezuelan coast was visited September 7 and 8, followed by stops at Orchilla, El Roque, Bonaire, Curacao, and Aruba. On September 24 the party arrived once more at San Juan, P. R. In addition to a rich harvest of mollusks, this expedition as a by-product secured numerous specimens of animals of many groups as detailed elsewhere in this report.

Rev. David C. Graham, long a cooperator in the field work of the Smithsonian, in the summer of 1929 made a collecting expedition to the Muping district in Szechwan, the type locality of many of the species discovered by the Abbé Armand David. Doctor Graham started from his headquarters Suifu on June 15 and reached Muping 11 days later. Collections were made at several localities in the district with good results, numerous specimens of mammals, among them three flat skins of the "giant Panda," birds, reptiles, amphibians, fishes, and insects being obtained. He returned in August to Suifu and characterizes the trip as a successful reconnaissance. A number of forms in the different groups enumerated are new to the Museum, and the entire collection is of high importance.

Through the cooperation of Mr. Lee Parish, of Tulsa, Okla., there was organized in the late winter the Parish-Smithsonian expedition to Haiti, in which Mr. Parish, and Mr. and Mrs. S. W. Parish were accompanied by Mr. W. M. Perrygo of the staff in taxidermy. The party sailed from Miami, Fla., on February 15, on the yacht *Esperanza*, passing along the north coast of Cuba where stops for collecting were made at Gebara, Moa Key, the mainland opposite Moa, and Port Tanamo. In Haiti, visits were made to Gonave and Petit Gonave Islands, both north and south sides of the southern peninsula, Ile a Vache off the south coast, and Navassa Island. Mr. Perrygo returned by steamer from Port-au-Prince, Haiti, on May 28,

arriving in New York June 2. The specimens brought back include 35 mammals, about 600 birds, 206 reptiles, 281 fish, marine invertebrates, and echinoderms, as well as some live animals for the National Zoological Park. The material is of importance and will give much information of value concerning the area covered.

The Museum has also had the valued cooperation of the Hon. Gifford Pinchot in the Pinchot South Sea expedition which sailed from Brooklyn, N. Y., on March 30, 1929 in the auxiliary yacht *Mary Pinchot*. The party consisted of the Hon. Gifford Pinchot, Mrs. Pinchot, Dr. H. A. Pilsbry of the Academy of Natural Sciences, Philadelphia, and Dr. A. K. Fisher of the Biological Survey, Department of Agriculture, who through cooperation of the survey was detailed to make collections for the National Museum. No stops were made until Key West was reached on April 7, when four days were spent at this interesting place. A short stop was made at Habana whence the expedition proceeded to Grand Cayman Island. On April 16 and 17 a collection of birds and other zoological specimens was made there and then the party continued to Swan, Old Providence, and St. Andrews Islands. A humming bird new to science was secured on the island of St. Andrews. Cristobal, in the Canal Zone, was reached on April 29 and on account of engine trouble the expedition was detained for the following month in the Canal Zone. On June 1 the *Mary Pinchot* left Balboa for Cocos Island where several days were spent collecting specimens. They continued to the Galapagos Islands on June 11. The first stop was made at Tower Island, followed by visits to Indefatigable, Seymour, Charles, Hood, Chatham, Barrington, Albemarle, Narborough, and a number of smaller islands. Considerable collections of birds and other zoological material were obtained by August 26 when the party continued westward. At Tagus Cove, Albermarle Island, the flightless cormorant and penguin were found. From the Galapagos Islands the expedition proceeded 3,100 miles to the Marquesas Islands, where they visited Hiva-oo, Fatu-Hiva, Uahuka, Nukahiva, and later Eiao, one of the islands of the northern group. From this point the voyage continued to the Tuamotu Islands. Fruit pigeons, robber crabs, and other crustaceans, corals, and shells were collected. The cruise was ended at Papeete, Tahiti, when because of the lateness of the season the party returned by steamer to San Francisco, arriving there on October 25, 1929. The *Mary Pinchot* was taken back to Savannah, Ga., by the officers and crew.

Through the untiring energy of Mr. Pinchot and of Doctor Fisher, who represented the Museum on the expedition, large and valuable collections including porpoises, bats, birds, reptiles, fishes, insects, and other animals have come to the Museum as noted elsewhere in this report, numerous forms being new to our collections.

The explorations of Dr. Hugh M. Smith in Siam were continued throughout the year. Among other journeys he made a trip to the mountains of northern and northeastern Siam, where little zoological collecting has been done before. As in previous years a number of species new to science have been obtained.

In May, 1930, Dr. A. Wetmore made a short collecting trip principally for birds in the mountains of northern Spain where he obtained a number of forms new to the Museum collections. His work was carried out principally from Puente de los Fierros, Busdongo, and Riano.

Dr. Joseph F. Rock continued work under the auspices of the National Geographic Society, in the semi-independent kingdom of Muli, in southwestern Szechwan, China, and also visited the Minyankonka Mountains. He made important collections of birds and plants, the specimens coming to the National Museum as a gift from the National Geographic Society.

Mr. Ernest G. Holt, traveling under the auspices of the National Geographic Society, accompanied a boundary survey party along the Venezuelan-Brazilian frontier returning to this country with a valuable collection of birds, reptiles, plants, and other material which was presented to the National Museum as a gift from the National Geographic Society.

Dr. H. C. Kellers, United States Navy, who through cooperation of the Navy Department was attached as surgeon to the naval solar eclipse expedition to the island of Panay, P. I., returned with large zoological collections, principally of reptiles, fishes, and marine invertebrates which are of great scientific value.

Dr. J. M. Aldrich, at the beginning of the fiscal year was in Europe working in the British Museum examining types of species of flies. In July he proceeded to Bergen, Norway, and after a brief collecting excursion there continued to Sweden where he spent a successful season collecting at Are. During this work he ascended the Areskutan, a 5,000-foot high mountain where Zetterstedt, 100 years before, had made important entomological collections.

Doctor Aldrich on May 15, 1930, left Washington for a collecting trip to the high altitudes of Idaho, Washington, Oregon, and northern California, a journey on which he was absent at the end of the fiscal year.

Mr. H. H. Shamel, of the division of mammals, was detailed for about three weeks in May, 1930, to collect natural history specimens in southwestern Missouri and eastern Kansas. Twenty days were spent in Barry and McDonald Counties, Mo., and a few days in Montgomery and Harvey Counties, Kans. The collection obtained included 65 mammals, 399 fishes, 34 birds, and between 100 and 125 reptiles, invertebrates, insects as well as three living mammals for

the National Zoological Park. The black tailed jack rabbit obtained in Barry County, Mo., was of interest as it is said to have been in this region for only about 20 years, though previously recorded for Missouri from Vernon County. While only one specimen was secured, a good many were seen.

E. D. Reid, of the division of fishes, was detailed from March 20 to April 12, 1930, to make collections of freshwater animals in the highlands of North Carolina, Tennessee, and Georgia. He secured a fine lot of amphibians.

E. P. Killip, associate curator of plants, accompanied by Mr. Albert C. Smith, and Mr. W. J. Dennis made an extended journey to eastern Peru and Amazonian Brazil, the time actually spent in the field being from April 9, 1929, to November 15, 1929. The expedition, under the Smithsonian Institution, made general botanical collections, and investigated especially the various plants used as fish poisons. The New York Botanical Garden cooperated in the project by allowing Mr. Smith, a member of the garden staff, leave of absence for the work. Nearly 27,000 specimens were collected and such studies as have been made to date show that a large number of novelties were obtained. Many species obtained have never before been brought back to American herbaria.

Dr. A. S. Hitchcock, custodian of the grass herbarium, spent the months from July to October, 1929, in south and east Africa, collecting and studying grasses. He visited Cape Colony, Transvaal, Portuguese East Africa, Tanganyika, Zanzibar, Kenya, and Uganda, obtaining a large number of specimens. He was an officially invited guest of the British Association for the Advancement of Science meeting in South Africa.

Mrs. Agnes Chase of the grass herbarium, made an expedition to Brazil during the months October to May, visiting the States of Rio de Janeiro, Espírito Santo, Minas Gerães, Goyaz, Sao Paulo, and Mattogrosso. More than 2,500 collection numbers were obtained, with an average of 5 specimens to each number.

For four months of the last fiscal year and extending into the early part of this, Dr. W. F. Foshag was engaged in field work in the borax regions of California, Nevada, and Oregon collecting under the Roebing fund of the Smithsonian Institution with the collaboration of the Harvard Mineralogical Museum. The purposes of the expedition were to study the mineralogy and geology of the borax deposits, with particular regard to their origin, and to obtain for the Museum a comprehensive collection of typical minerals and ores. It was thought desirable to undertake the work at this time since changes in the borax industry have rendered obsolete many of the most interesting of the deposits. Some very fine exhibition specimens, a comprehensive series illustrating the geology

and mineralogy of the deposits, and much duplicate material resulted.

In the latter part of April Doctor Foshag was detailed to examine some mineral localities in North Carolina. Through the courtesy of Messrs. Burnham S. Colburn, and Will Colburn of Biltmore Forest, he was enabled to visit Spruce Pine, Balsam Gap, Masons Mountain, Webster, and Statesville, and to collect rare uranium and other minerals.

In order to carry out an expressed wish of the late Dr. Frank Springer, Dr. R. S. Bassler visited Europe for the purpose of making casts of various type specimens of crinoids preserved in foreign museums. His chief object was to secure facsimiles of the specimens described by Barrande, which, with many other mementoes of that famous paleontologist, are preserved in the National Museum at Prague, Bohemia, this having been the scene of his greatest work. Under most pleasant conditions and with the hearty cooperation of the authorities at the museum, this work was carried to a successful conclusion. Doctor Bassler was also enabled to visit other European museums and various collecting fields. At the museums the paleontological collections were studied and personal contact established with the authorities; the time at the collecting fields was devoted mainly to a study of the stratigraphy, in order to secure data for the furtherance of work on our collections.

Late in the year, Doctor Bassler, accompanied by Dr. Ferdinand Canu, made brief field trips in New England and along the Atlantic coast in furtherance of their studies on Bryozoa.

Dr. C. E. Resser continued researches on the Cambrian of the Rocky Mountain region under the Smithsonian Institution. For a portion of the time he was accompanied by Dr. L. J. Moraes of the Brazilian Geological Survey, who was interested in similar problems. Doctor Resser's chosen field was in Montana, with a stop in the Yellowstone National Park to examine certain peculiar structures caused by algal deposits. Camp was next established on the Bridger Range in Montana where a restudy of the stratigraphy proved it to be much more complicated than was previously supposed. Thence a move westward and northwestward led into the Blackfoot country where the pre-Cambrian and Cambrian rocks were examined. Following this, various ranges in southwestern Montana were visited, and the last part of the season was spent in the Teton Mountains in extending the studies of the previous season. Small collections were made, the expedition being devoted mainly to field observations.

The field expedition under the Smithsonian in charge of Mr. C. W. Gilmore covered certain badland areas extending from Kimbetoh

northward to Farmington in the San Juan Basin, N. Mex. Although the surface indications gave every promise of yielding rich returns, it was found that the majority of the leads consisted of single bones. Individual skeletons had evidently been widely scattered before interment, and only occasionally were portions of skeletons found together, which fact, however, did not prevent the collecting of material of much scientific interest, as several new species appear to be represented and some known forms are new to the fauna. The collection, as a whole, is a decided contribution to the meagerly known faunas of the area.

The expedition under the Smithsonian by Dr. J. W. Gidley to the Snake River Valley, Idaho, inaugurated toward the end of the last fiscal year, was attended with unusual success—so much so, in fact, that a second expedition to the same region is now in progress. Well preserved remains of a rare extinct species of horse comprise the most important part of the collection, while gravel deposits in the vicinity yielded a large species of bison, a giant musk ox, camel, horse, and other extinct animals of the Pleistocene period.

Later in the year Doctor Gidley continued his researches dealing with the problem of the association of early man with the extinct mammalian fauna in Florida, the work being financed by contributions from Mr. Childs Frick and by the Smithsonian. Worth-while data and material were obtained, though the expedition was greatly hindered by excessive rains, which rendered it impossible to work out some of the most promising localities.

Under the auspices of the Carnegie Institution of Washington, Dr. Remington Kellogg, assisted by Mr. Norman Boss, was occupied for a month in exploration of the Eocene (Jackson) deposits in Alabama and Mississippi for Zeuglodont remains. The resulting small collection of these comparatively rare fossils was presented to the Museum. Messrs. Kellogg and Boss also made one trip of three days to the nearby Miocene localities along Chesapeake Bay to collect cetacean remains.

In August members of the Maryland Geological Survey brought to the Museum's attention the discovery of a large whalebone whale skull located in Miocene deposits in the vicinity of Governor's Run, Md. Dr. Remington Kellogg, with the assistance of Mr. A. J. Poole and members of the Maryland survey staff, were successful in collecting it, the specimen being one of the first of this type discovered.

Late in the fiscal year, Mr. C. W. Gilmore was detailed to head an expedition into the Eocene of the Bridger Basin in southwestern Wyoming, and Dr. J. W. Gidley returned to the scene of his 1929 collections in Idaho. As both expeditions will continue well into next year, detailed reports will go over until 1930-31.

EDUCATIONAL WORK

The National Museum has educational appeal to residents of every part of this country, and citizens from all sections of our land come to enjoy and profit by visits to its exhibition halls. The function of the Museum is primarily educational, its work along these lines being divided between its exhibits which portray facts visually to the mind of the visitor, and its researches and publications, where observations based on its collections are arranged for the enlightenment of other persons than the workers concerned. Through its publications the Museum reaches libraries and individuals not only throughout our own country but throughout the world. These publications are distributed without charge. In addition, museums and other institutions in all parts of the Nation share in the duplicate specimens that the National Museum has for distribution. Unlike many museums the National Museum has at present no special provision for teaching by means of special lectures or guides, as it has no funds available for the employment of such persons. Its collections, however, are so arranged that each exhibit is clearly intelligible through its coordinate parts and through the accompanying labels, so that the visitor may examine and study as closely or as casually as is desired. Where necessary, members of the scientific and technical staffs are always ready to answer special questions and to explain exhibits so far as other duties permit.

In the department of anthropology talks were given from time to time to college, normal school, and grade school pupils, who came by special appointment to inspect the Museum exhibits. The Felix Mahoney National School of Fine and Applied Art had classes in regular attendance on Thursdays studying art designs of various peoples as represented in the exhibits. The present year holds the record in this department in the number of temporary loans made to schools, principally in the District of Columbia, of ethnological objects designed to instruct children of grade and high school age in the cultural achievements of peoples other than our own. Areas and tribes singled out for special study by teachers were: Eskimo and the arts of the Arctic; African ethnology and art; Japanese folk ways and art; the Hawaiians; the Pueblo Indians; objects of art and the arts and crafts generally of the several American Indian tribes. Mr. Collins gave talks on his work in Alaska before the Anthropological Society of Washington, the Washington Academy of Sciences, and the Birmingham Anthropological Society. Talks were given by members of the staff before a number of local clubs.

On the evening of January 10, Mr. Judd, curator of American archeology, together with Dr. A. E. Douglass, University of Arizona, described before the National Geographic Society, in the Washington Auditorium, the results of seven years' tree-ring investigations,

brought successfully to conclusion in 1929. During late January and early February the curator addressed several groups in Phoenix, Ariz., and neighboring cities. On his way East, on February 10, he lectured before the class in anthropology in Colorado College, and the Winter Night Club in Colorado Springs. On April 19, an address was delivered to the Thirty-ninth Continental Congress, Daughters of the American Revolution, on the subject "Pueblo Bonito as a Prehistoric Metropolis of the Southwest." As representative of the Smithsonian Institution the curator continued to advise with the other trustees of the Laboratory of Anthropology, Santa Fe, N. Mex., serving during the past year as a member of the committee on scholarships which selected instructors and students for three field parties. As one of its trustees and as chairman of its research committee, the curator has been called upon from time to time to advise with the Archaeological Society of Washington.

While in the field in Alaska, and on the way there and back, as well as in Washington, Dr. Aleš Hrdlička, curator of physical anthropology, has during the year given lectures on various subjects connected with his scientific work. Some of these were as follows: October 10, 1929, American Dental Association, Washington, D. C., "Dentistry and Research"; November 26, 1929, Washington Academy of Sciences, Washington, D. C., "1929 Anthropological Exploration in Alaska"; December 29, 1929, Davenport Public Museum, Davenport, Iowa, "New Lights on Anthropological Problems of Alaska"; January 7, 1930, Washington Club of Women, Washington, D. C., "Recent Smithsonian Explorations in Alaska"; January 14, 1930, Washington Academy of Sciences, Washington, D. C., address as retiring president, "The General Problems of Organic Evolution"; January 21, 1930, Washington Anthropological Society, Washington, D. C., "The Differentiation of Man into Races and His Spread over the Earth"; March 17, 1930, Federation of Women's Clubs and Twentieth Century Club, Washington, D. C., "New Lights on Alaska"; April 17, 1930, American Association of Physical Anthropologists, University, Va., "Normal Variation"; April 18, 1930, Joint Session of American Association of Physical Anthropologists and American Association of Anatomists, University, Va., "Form-Types of the Body and in Osteology"; April 26, 1930, American Philosophical Society, Philadelphia, Pa., "Tertiary Man—A Critique"; May 5, 1930, Science Club of Milwaukee-Downer College, Milwaukee, Wis., "New Evidence of the Human Migrations and Problems of Alaska." A talk was given before the members of the American Academy of Periodontology, of Nashville, Tenn., who visited the division of physical anthropology on October 4, 1929. In addition scientific papers were presented before the National Academy of Sciences and the American Association for the Advance-

ment of Science. Considerable assistance in the course of the year was given to scientific as well as other correspondents through letters. There were also numerous visitors of note to the division who received due aid and attention.

In the department of biology Dr. Herbert Friedmann guided a party of students from the normal school at Shepardstown, W. Va., through the exhibition galleries, and gave some assistance to Doctor Bartsch, who brought students from George Washington University to the Museum for examinations in ornithology. Doctor Friedmann also guided members of the 4-H Club around the exhibition galleries and explained the various objects to them. In the division of mammals the nature-teaching corps of the public schools has been supplied by the assistant curator with considerable live material for demonstration in the classroom, and several college zoology classes have been conducted through the exhibition halls at the request of the professor in charge. In addition, effort has been made to cooperate to the fullest extent in the loan of specimens or the giving of data to research students from universities out of this city.

In January Dr. J. M. Aldrich, curator of insects, gave a lecture on flies of importance in medicine to the medical classes of Howard University. At a meeting of the Biological Society of Washington he discussed the life zones of northern Europe. Mr. C. Shoemaker rendered valuable assistance to the Audubon Society in connection with its bird-study classes and field trips during the current year. On March 13 Doctor Bartsch gave a talk at the educational department of the Young Men's Christian Association on marine exploration and on April 7 gave an illustrated lecture on "Birds Breeding About Our Homes." On April 11 he lectured at the Naval Medical School on "The Mollusks Serving as Intermediate Hosts of Trematode Parasites Upon Man." Doctor Bartsch represented the Smithsonian Institution and the National Museum at a meeting of the committee on nature activities of the recreation committee of the Washington council of social agencies held on April 9, to discuss the better utilization of the natural history facilities in the neighborhood of Washington for the benefit of visitors and residents.

The activities of Austin H. Clark as director of the press service of the American Association for the Advancement of Science and similar service for the American Geophysical Union and other organizations, may be mentioned under this heading. On April 10 he gave a radio talk on "Evolution" over the National Broadcasting Co.'s network, including a large number of stations.

Educational work by members of the staff of the division of plants has consisted mainly of assistance given in identifying specimens for organizations and institutions and in suggesting helpful literature and methods of work. Dr. W. R. Maxon has given assistance

of this nature as president of the American Fern Society. As a result of recent field work in South America, Mr. Killip has been in a position to give special assistance to organizations interested in the development of commercial products from South American plants. The following addresses have been given: Dr. F. V. Coville—"The Municipal Wild Park," "The National Arboretum"—before the Presidents' Council of the Garden Club of America, New York City, November 13, 1929; Mr. Killip—"Across the Andes and Down the Amazon for Plants"—before the Biological Society of Washington, March 22, 1930; "Across the Andes and Down the Amazon for 'Cube' and Other Plants"—before the Botanical Society of Washington, May 6, 1930.

The troupe of Boy Scouts, organized under Museum auspices for the study of natural history, with Mr. James Benn as scout master, has had the benefit of illustrated lectures by Dr. R. S. Bassler, Dr. C. E. Resser, Dr. W. F. Foshag, Mr. E. P. Henderson, Mr. C. W. Gilmore, and Dr. J. W. Gidley, of the department of geology. In addition, Doctor Bassler has lectured before the City Club, to visiting teachers, students, and similar parties. He has likewise, as in past years, explained the local geology to visiting geologists and students in increasing numbers. This procedure has been carried on for so many years that the Museum collections and the local geology are known to many hundreds of American and foreign scientists with whom we have made personal friendships of mutual benefit.

Doctor Foshag delivered lectures on the boron deposits of the United States and on the ore deposits of Mexico to the graduate school of the department of geology at Princeton University. The saline deposits of the western United States was the subject of a lecture at the Philadelphia Academy of Natural Sciences, and the mineralogy of Mexico was discussed before the New York Mineralogical Society. "The Origin of the Borax Deposits of the United States" was presented at the annual meeting of the American Mineralogical Society.

Mr. E. P. Henderson has given several lectures on geology and mining before various clubs and schools in the District.

All members of the staff have conducted students through the exhibition halls and laboratories, explaining the exhibits and methods of preparation.

In the divisions of mineral and mechanical technology the staff repeated its series of talks as in former years, to classes of local school children on many occasions throughout the year, and the assistant curator, Paul E. Garber, delivered on several occasions stereopticon lectures on the "History of Aviation and the Building of Model Airplanes."

The exhibits in the textile halls continued popular with classes from the local public schools, frequent requests being received for explanations of the technical processes used in the manufacture and ornamentation of cloth. Twelve lectures or talks to educational groups were given during the year by the employees of the division of textiles. The curator, F. L. Lewton, lectured to classes in the home economics department of George Washington University, on the subjects of "Wool and the Woolen Industry," "Silk and Rayon," and "Jacquard Weaving"; to similar classes of the University of Maryland, on three successive days on the "Spinning and Weaving Arts"; to instructors from the Abbott School of Fine and Commercial Art on the "Preparation of Commercial Textile Designs"; and to pupils of the Amidon Public School on cotton spinning, with a demonstration. The aid in textiles, Mrs. E. W. Rosson, gave a talk on textile designs to art students of the Stuart Junior High School. Many teachers of the Washington public schools were assisted in locating sources of educational material for use in visual instruction.

At the request of their training department, Charles N. Watkins, assistant curator, gave a talk at Woodward & Lothrop's on the woods used to-day in the production of furniture, before members of the furniture and interior decorating departments. He also lectured on the wood collections of the Museum to senior students of the New York State College of Forestry, Syracuse, N. Y., who were on their way south to study milling and logging operations.

The history of medicine and materia medica collections continued to attract the interest of students, and some classes made use of them constantly throughout the year. Dr. A. C. Taylor, professor of pharmacy, George Washington University, visited the division with his classes, as heretofore, supplementing classroom instruction with a view of actual specimens and an informal talk on exhibits by Charles Whitebread, assistant curator. These students called on other occasions to utilize the collections in various ways. Some near-by high schools have inaugurated the practice of assigning health topics to students and detailing them to visit the section of public health of the Museum for data to be used in a discussion of the various subjects. This has led to a more extensive use of the health collection, and a greater demand on the time of the Museum's personnel. Classes of student nurses from hospitals within a radius of 200 miles of Washington, visited the Museum with their instructors for the purpose of studying the collections having a bearing on their work, and particularly those relating to disease prevention. Illustrations and labels pertaining to the series on history of pharmacy were furnished to Dr. E. Fullerton Cook, for use in the preparation of a similar exhibit at the Philadelphia College of Pharmacy

and Science; also photographs of specimens relating to the discovery of ether anesthesia, for use in popular lecture.

A special exhibit of historical material pertaining to the sixth, seventh, eighth, ninth, and tenth revisions of the United States Pharmacopœia was prepared and shown at the Willard Hotel on May 13 and 14 for the benefit of the members of the United States Pharmacopœial Convention (Inc.), in session there to arrange for the eleventh revision of this book of medical standards.

In the division of graphic arts, education is advanced not only by the permanent exhibition series but by special loan exhibitions in its public halls showing the best current work in the field of graphic arts and by six traveling exhibits illustrating the making of prints. The latter were loaned 49 times during the year, being exhibited in all parts of the United States. A special exhibit of 39 framed prints, illustrating the various processes of printing pictures from wood-block engraving to stencil printing in water colors, was prepared for display at the printing exposition, at Richmond, Va., March 18 to 22, under the auspices of the Richmond Printers' Association, and an exhibit illustrating the history of photography was shown at the Dayton Art Institute. The curator, R. P. Tolman, gave a talk to the art section of the Woman's Club of Chevy Chase on the various methods of printing. He lectured also on early American miniatures before the Society of Colonial Dames, identifying a number of miniatures. A series of uniforms and small arms and cutting weapons, depicting the evolution of the American Army uniform, rifle, pistol, and sword from the Revolution to date, was brought together and displayed at the annual military carnival at Governor's Island in June.

During the National 4-H Club camp, composed of prize-winning farm boys and girls from 40 States, which was held on the grounds of the Department of Agriculture during the latter part of June, a delegation of about 150, representing members enrolled in over 45,000 clubs, visited the Arts and Industries Building of the Museum. At the entrance of the building they were divided into 10 groups, each guided by a member of the staff through the building, following a special itinerary covering practically the entire first floor. Talks were given by the special guides on the exhibits of particular interest.

VISITORS

The Museum buildings were open as usual during the year on week days from 9 a. m. to 4.30 p. m. and, with the exception of the Aircraft Building, on Sunday afternoons from 1.30 to 4.30. All the buildings remained closed on December 24 and 25, 1929, in accordance with presidential order, and on New Year's Day.

The flags on the buildings were placed at half-mast on November 19, 1929, out of respect to the late James William Good, Secretary of War, and were flown at half-mast from March 9 to April 7, out of respect to ex-President William Howard Taft, who for many years was associated with the Smithsonian Institution successively as member of the Institution, presiding officer *ex officio*, regent, and chancellor. On November 13, 1929, the flag pole on the Smithsonian Building was found to be in a dangerous condition and was taken down, so that no flag was flown on that building until April 10, 1930, when a new pole had been put in place on the north tower.

Visitors for the year aggregated 1,894,987, against 1,929,625 the preceding year, reflecting changed economic conditions of the country. The average attendance for week days was 5,125 and for Sundays 10,317. The number of visitors to the Smithsonian Building on week days was 235,462 and 47,020 on Sundays, a daily week-day average of 757 and a Sunday average of 904; to the Arts and Industries Building 730,772 on week days and 132,707 on Sundays, a daily week-day average of 2,350 and a Sunday average of 2,552; to the Natural History Building 504,033 on week days and 121,293 on Sundays, a daily week-day average of 1,621 and a Sunday average of 2,333; and the number of visitors to the Aircraft Building for the year was 123,700, a daily average of 398.

The following tables show, respectively, the attendance of visitors during each month of the last year and for each year since 1881, when the building now devoted to arts and industries was first opened to the public:

Number of visitors during the year ended June 30, 1930

Year and month	Smithsonian Building	Museum buildings			Total
		Arts and Industries	Natural History	Aircraft	
1929					
July-----	40, 999	112, 520	61, 001	18, 038	232, 558
August-----	58, 146	155, 817	110, 616	25, 767	350, 346
September-----	32, 505	94, 851	69, 501	13, 663	210, 520
October-----	20, 481	61, 394	43, 418	7, 502	132, 795
November-----	11, 948	36, 973	31, 253	5, 291	85, 465
December-----	8, 835	33, 143	21, 915	3, 918	67, 811
1930					
January-----	7, 781	21, 292	23, 825	3, 089	55, 987
February-----	8, 770	24, 604	28, 627	3, 849	65, 850
March-----	12, 591	37, 102	35, 084	4, 765	89, 542
April-----	34, 639	124, 852	78, 971	13, 939	252, 401
May-----	19, 887	75, 713	57, 697	11, 215	164, 512
June-----	25, 900	85, 218	63, 418	12, 664	187, 200
Total-----	282, 482	863, 479	625, 326	123, 700	1, 894, 987

Number of visitors to the Smithsonian and Museum Buildings since 1881

Year	Smithsonian Building	Museum buildings			Total
		Arts and Industries	Natural History	Aircraft	
1881	100,000	150,000			250,000
1882	152,744	167,455			320,199
1883	104,823	202,188			307,011
1884 (half year)	45,565	97,661			143,226
1884-85 (fiscal year)	105,993	205,026			311,019
1885-86	88,960	174,225			263,185
1886-87	98,552	216,565			315,114
1887-88	102,863	249,665			352,528
1888-89	149,618	374,843			524,461
1889-90	120,894	274,324			395,218
1890-91	111,669	286,426			398,095
1891-92	114,817	269,825			384,642
1892-93	174,188	319,930			494,118
1893-94	103,910	195,748			299,658
1894-95	105,658	201,744			307,402
1895-96	103,650	180,505			284,155
1896-97	115,709	229,606			345,315
1897-98	99,273	177,254			276,527
1898-99	116,912	192,471			309,383
1899-1900	133,147	225,440			358,587
1900-1901	151,563	216,556			368,119
1901-2	144,107	173,888			317,995
1902-3	181,174	315,307			496,481
1903-4	143,988	220,778			364,766
1904-5	149,380	235,921			385,301
1905-6	149,661	210,886			360,547
1906-7	153,591	210,017			363,608
1907-8	237,182	299,659			536,841
1908-9	198,054	245,187			443,241
1909-10	179,163	228,804	50,403		458,370
1910-11	167,085	207,010	151,112		525,207
1911-12	143,134	172,182	281,887		597,203
1912-13	142,420	173,858	319,806		636,084
1913-14	102,645	146,533	329,381		578,559
1914-15	40,324	133,202	321,712		495,238
1915-16	48,517	146,956	381,228		576,701
1916-17	86,335	161,700	407,025		655,060
1917-18	67,224	161,298	401,100		629,622
1918-19	101,504	266,532	¹ 132,859		500,895
1919-20	86,013	250,982	422,984		759,979
1920-21	90,235	286,397	467,299	31,235	875,166
1921-22	83,384	262,151	441,604	46,380	833,519
1922-23	95,168	259,542	508,518	42,904	906,132
1923-24	104,601	290,012	540,776	43,534	978,923
1924-25	107,342	304,858	557,016	52,787	1,022,003
1925-26	110,975	355,762	581,563	58,005	1,106,305
1926-27	128,868	380,430	561,286	82,628	1,153,212
1927-28	175,190	517,238	618,773	102,185	1,413,386
1928-29	277,295	868,952	650,815	132,563	1,929,625
1929-30	282,482	863,479	625,326	123,700	1,894,987
Grand total	6,377,549	12,956,975	8,752,473	715,921	28,802,918

¹ Building open for only 3 months of the year.

PUBLICATIONS

The publications issued during the year include 16 volumes, namely, the Annual Report for 1929; Bulletin 76, part 3, Asteroidea of the North Pacific and Adjacent Waters—Forcipulata (concluded), by Walter Kenrick Fisher; Bulletin 100, volume 9, Contributions to the Biology of the Philippine Archipelago and Adjacent Regions—Bryozoa of the Philippine Region, by Ferdinand Canu and Ray S. Bassler; Bulletin 100, volume 10, Contributions to the Biology of the Philippine Archipelago and Adjacent Regions—The Fishes of the Families Amiidae, Chandidae, Duleidae, and Serranidae, obtained by the United States Bureau of Fisheries steamer *Albatross* in 1907 to 1910, chiefly in the Philippine Islands and adjacent seas, by Henry W. Fowler and Barton A. Bean; Bulletin 104, part 7, The Foraminifera of the Atlantic Ocean—Nonionidae, Camerinidae, Peneroplidae, and Alveolinellidae, by Joseph Augustine Cushman; Bulletin 147, Archeological and Historical Investigations in Samaná, Dominican Republic, by Herbert W. Krieger; Bulletin 148, Collections of Objects of Religious Ceremonial in the United States National Museum, by Immanuel Moses Casanowicz; Bulletin 149, Composition and Structure of Meteorites, by George P. Merrill; Bulletin 150, Revision of the Fishes of the Family Liparidae, by Victor Burke; Bulletin 151, East African Reptiles and Amphibians in the United States National Museum, by Arthur Loveridge; Bulletin 152, The Cancroid Crabs of America of the Families Euryalidae, Portunidae, Atelecyclidae, Cancridae and Xanthidae, by Mary J. Rathbun; Bulletin 153, Birds Collected by the Childs Frick Expedition to Ethiopia and Kenya Colony—Part 1. Non-Passeres, by Herbert Friedmann, and a small edition, for office use, of the complete volumes 73, 74, and 75 of the Proceedings, and Contributions from the United States National Herbarium, volume 22, Systematic Plant Studies—chiefly Tropical American. Thirty-five separate papers published include three papers in the Contributions from the National Herbarium and 32 in the Proceedings.

The distribution of volumes and separates to libraries and individuals on the regular mailing lists aggregated 73,102 copies, while in addition 14,221 copies of publications issued during this and previous years were supplied in response to special requests. The mailing lists have been carefully revised to avoid loss in distribution so far as possible.

The editorial office, besides supervising the printing of the publications, has charge of all miscellaneous printing and binding for the Museum, in which connection 458,668 forms, labels, and other items were printed and 1,999 volumes were bound.

LIBRARY

Among the units of the Smithsonian library system the Museum library, with its 2 major and 36 minor collections, chiefly on natural history and technology, ranks next in size and importance to the Smithsonian deposit in the Library of Congress. This library made further progress during the past year toward becoming the complete, available, and efficient instrument that the Museum needs in its work of increasing and diffusing knowledge. This progress was retarded only by the lack of funds for the purchase of many of the books and periodicals requested by the curators—publications which could not be obtained by exchange—and for the employment of additional trained workers to enable the library not merely to meet the daily demands upon it, but to expedite the work of reorganization begun a few years ago. It is gratifying to report that this condition will be somewhat relieved after July 1, 1930, for on that date the annual allotment for books and periodicals will be increased from \$2,000 to \$3,000, and one new assistant will be provided. It is hoped that within a reasonable time a still larger sum can be allotted for the purchase of publications, and that a cataloguer, two general library assistants, a typist, and a messenger can be added to the staff. There is also need of more money for binding, for, while the rate at which the binding, both in the main library and in the sectional libraries, is now proceeding is fairly satisfactory, the fund available annually for this purpose should be at least \$1,000 more than at present, to assume the preservation of these rapidly growing collections, to improve their appearance, and to increase their usefulness.

As most of the gifts of the year from outside the Smithsonian were made directly to the Institution, rather than the National Museum, they will not be enumerated here but will be mentioned with others in the report of the librarian to the secretary of the Institution. Many of these publications, however, have found their way into the Museum library and others will soon follow.

Donors on the staff of the institution were Secretary Abbot, Assistant Secretary Wetmore, Dr. William H. Holmes, Director of the National Gallery of Art, Dr. Marcus Benjamin, A. N. Caudell, Dr. A. H. Clark, Dr. J. W. Gidley, Dr. O. P. Hay, Dr. Aleš Hrdlička, Dr. W. R. Maxon, Neil M. Judd, Dr. G. S. Miller, A. J. Olmsted, Miss Mary J. Rathbun, W. deC. Ravenel, Dr. C. W. Richmond, J. H. Riley, J. Townsend Russell, jr., and Dr. Waldo L. Schmitt. Mrs. Charles D. Walcott also gave the library a number of publications.

The daily routine of current work went on as usual throughout the year. The collections were increased—chiefly through exchange

and purchase—by 2,317 volumes and 668 pamphlets, with the result that at the end of the year there were in the library 76,879 volumes and 108,297 pamphlets. These numbers, of course, do not include thousands of volumes still uncatalogued or awaiting completion. The number of volumes prepared for binding was 2,071, of which 1,271 were bound. This work entailed considerable checking of sets, collating, and correspondence. In this connection it is of interest to note that the library was able to obtain, without expense, 688 volumes and parts lacking in its sets by writing special letters to the journals and learned societies concerned. The staff entered 8,805 periodicals, catalogued 1,146 volumes, 856 pamphlets, and 12 charts and added 4,493 cards to the catalogue of the natural history library and 295 to that of the technology library. They assigned to the sectional libraries 5,622 publications, and lent to the Museum scientific staff and other employees of the Smithsonian 7,745 separate items of which 2,820 were charged at the recently established loan desk in the Arts and Industries Building. Of the loans, 1,889 were borrowed from the Library of Congress and 246 elsewhere. The number of publications returned to the Library of Congress was 2,250, and to other libraries 241. The loans to Government libraries and to libraries outside of Washington were 181. Among the latter were included the American Museum of Natural History, the New York Botanical Garden, and the Department of Agriculture, Ottawa, Canada, and the following colleges and universities: Buffalo, California, Goucher, Harvard, Johns Hopkins, MacMaster (Toronto), Massachusetts Institute of Technology, Minnesota, North Carolina State, Princeton, and Tennessee. The reference use of the library, not only by those connected with the Smithsonian Institution and other branches of the Government, but also by students and the public in general increased over that of the year before and necessitated a corresponding increase of work on the part of the staff. Many inquiries for information of various kinds were received and answered. To the technology library alone, with its 70 visitors for the year, outside of the Smithsonian employees, there came about 225 such inquiries, while to the main library came many more.

Marked progress was made on the shelf list of the main library, with the addition of more than 15,000 cards. This work will continue to receive special attention until it is finished, in order that inventory may be undertaken at the earliest possible moment. Another detailed piece of work was the checking of several long sets of publications, with a view to completing them, especially those of the Carnegie Institution of Washington, the Zoological Society of London, and the United States Geological Survey. In this connec-

tion it may be added that hundreds of paper-covered publications of the United States Geological Survey were listed for return to the survey, to be replaced by cloth-bound volumes, in accordance with a recent agreement between the Museum and the survey for the exchange of bound copies of their respective publications. The reports and other publications of the State geological surveys, which had been brought together the previous year from various Smithsonian libraries, were also checked and most of them used to fill gaps in either the main library of the Museum or the library in the section of geology. The 434 volumes not needed were given to the United States Geological Survey. About 1,050 scientific reprints were distributed to the sections. The Wistar Institute cards were filed to date, and more than 10,000 Concilium Bibliographicum cards of the author set were filed in the main library, while the assignment, begun the year before, of appropriate parts of the systematic set to the sectional libraries was continued. It is hoped that the rest of this set can soon be deposited in the sections interested, and that in the future the new increments as they are received can immediately be sorted and sent to the curators for their files. Finally, in preparation for the forthcoming supplement to the Union List of Serials, the staff checked the periodical records of all the Smithsonian libraries, except the deposit in the Library of Congress, for new entries and for sets completed since the publication of the Union List in 1925—a task which required a great deal of time.

The 36 sectional libraries of the Museum are the immediate working tools of the curators and their assistants. Many of them contain rich collections of highly specialized material, some of which has never been catalogued. These libraries present other problems, too, that are pressing for solution, one of their most urgent needs being for two assistants who can be detailed from the main library to spend their full time looking after the interests of these smaller but very important units. During the year just closed it was possible for the library staff to find time for only a few pieces of work in these libraries, such as preparing 2,680 cards for the pamphlet collection in the section of mammals, assisting the section of geology to increase quite materially its set of publications of the various State geological surveys, and cooperating with the scientific staff in the section of botany in reorganizing the library of that section, especially by filing 10,000 reference cards for it and by getting the John Donnell Smith botanical collection ready for transfer to its shelves. This included the making of a catalogue of the collection.

The sectional libraries are as follows:

Administration.	Marine invertebrates.
Administrative assistant's office.	Mechanical technology.
American archeology.	Medicine.
Anthropology.	Minerals.
Biology.	Mineral technology.
Birds.	Mollusks.
Botany.	Old-World archeology.
Echinoderms.	Organic chemistry.
Editor's office.	Paleobotany.
Ethnology.	Photography.
Fishes.	Physical anthropology.
Foods.	Property clerk's office.
Geology.	Reptiles and batrachians.
Graphic arts.	Superintendent's office.
History.	Taxidermy.
Insects.	Textiles.
Invertebrate paleontology.	Vertebrate paleontology.
Mammals.	Wood technology.

About 400 feet of new steel shelving were installed in the main stackroom. This additional space will relieve for the time being the congested condition of the library and will provide room for the rearranging of the collections, that is soon to be undertaken. The improvement in physical equipment and appearance of several of the sectional libraries, notably those of botany and geology, should also be mentioned.

PHOTOGRAPHIC LABORATORY

The photographic laboratory of the Museum, with its three employees, during the year made 1930 negatives, 17,877 prints, 433 lantern slides, 85 enlargements, 6 Agfa color plates, developed 220 rolls of films, 75 film packs and 3 plates and dry mounted 7 prints. These were required for illustrations in publications or for record in the National Museum, the National Gallery of Art, and the Bureau of American Ethnology. The Museum laboratory through a cooperative arrangement serves other bureaus of the Smithsonian Institution in their photographic work. The amount of work performed shows a definite increase over that of last year.

BUILDINGS AND EQUIPMENT

Building repairs and alterations.—With the assistance of the office of Public Buildings and Public Parks in designing and inspecting, a steel frame gallery was erected in room 18–20, ground floor, Natural History Building, increasing the storage facilities of the division of vertebrate paleontology by approximately 1,750 square feet of floor space. The gallery, or mezzanine, extends over the entire room,

except for openings at the south end where the stairs and lift occur. The five main floor beams of the gallery are let into the east and west walls of the room, and each is supported in the middle by an upright I beam. The intermediate floor beams extend north and south between the large east and west beams. An aisle, about 4 feet wide, runs north and south along the side of the gallery next to the four windows; and there are seven side aisles, about 3 feet wide, running east and west, and a 5-foot aisle along the south end of the gallery, adjoining the stairs and lift. The gallery is so planned that the arrangement of the storage cases will be the same as on the ground floor of the laboratory; that is, there will be seven double-faced stacks of storage cases and one single-faced stack. The aisles are covered with solid steel plates with checkered face. A narrow open space between the rows of cases and the aisle plates has been provided for ventilation.

At the beginning of the year the work of safeguarding the dome of the Natural History Building had just been finished. Before reopening the rotunda to the public, the limestone walls and plastered surfaces of the rotunda were steam cleaned, the plastered surfaces repainted, and the floor repolished. The rotunda was opened to the public October 23, 1929, after being closed to visitors for nearly two years.

The north entrance to the Natural History Building was likewise renovated, the ceiling of the vestibule, and the walls, ceilings, and piers of the foyer, being repainted. The side walls and floors of the west and west north ranges—exhibition halls—and the alcoholic storage space for fishes, all on the ground floor, were repainted, as were likewise 12 office and laboratory rooms on various floors.

The worn-out surface of the roadway at the southeast corner of the Natural History Building was given a new concrete surface. Hinged gates were erected at the entrances from B Street to the roadways on the east and west sides of the building to control parking on these two roadways which are maintained by the Museum.

In the Arts and Industries Building the fountain in the central rotunda was removed this year because of recent accidents where visitors intent on other matters had fallen into the water. The granite coping about the pool was removed, and the pit around the Statue of Freedom filled in and concreted even with the tile floor of the remainder of the rotunda.

The southwest range gallery was thoroughly renovated and converted from storage space into exhibition space, affording expansion for the exhibits of mechanical technology and providing easy access to the west south range gallery from the west hall gallery. The period costume hall in the northwest range was repainted,

as were the offices of the division of textiles and the downstairs offices of the administrative assistant to the secretary. The north-west entrance to the building was thoroughly renovated, and a more modern drinking fountain was installed at the north entrance.

Tin roofs on this building and the exterior woodwork of all the windows were repainted. A cement coping was built along the sidewalk just east of the building, to separate parking space from the sidewalk.

An enlargement of the facilities in the women's comfort room has become necessary to accommodate the increased attendance. An adjoining room, No. 80, has been assigned to the purpose and work of remodeling this and the two old rooms was started late in the year under the regular appropriation. A special item of \$3,500 toward the project was included in the deficiency act approved after the close of the year.

In the Smithsonian Building the remodeling of the flag tower at the north entrance provided five additional office and laboratory rooms for the activities of the recently-organized division of radiation and organisms. The floors of the fourth, fifth, sixth, seventh, and eighth stories of this tower were renewed where necessary and strengthened, the windows were remodeled to provide additional light and ventilation, and an elevator installed, making these five high rooms, one on each level, readily accessible.

Four rooms in the west basement of the Smithsonian Building, which had been cleared of Museum material and painted in June, 1929, were this year specially fitted up by the erection of partitions, electrical installations, and special equipment for laboratories of the division of radiation and organisms, in accordance with plans furnished by Dr. F. S. Brackett, research associate in charge of that division. This space is peculiarly suited for the purpose, owing to the evenness of temperature because of the very heavy walls and the fact that these rooms are partially under ground.

The installation of these laboratories necessitated a renovation of the middle basement corridor. By the screening of the entrance to the men's comfort room in the north tower basement, the laboratories were made more readily accessible from the main entrance of the building and from the tower rooms.

The so-called old regents' room and the adjoining small room on the third floor of the south tower of the Smithsonian Building were renovated for use by the division of plants, the former as a branch library. The windows in the east end of the adjoining Herbarium Hall were remodeled to improve the ventilation.

A modern drinking fountain was installed on the east wall of the entrance to the children's room on the first floor, and the old style

drinking fountain removed from the north stair hall. The tin roofs on the Smithsonian Building were repainted.

Heat, light, and power plant.—The plant for furnishing heat, light, and power to the group of Museum buildings was in continuous operation during the major part of the fiscal year. It was not operated from July 1 to September 27, 1929, and was again closed down on May 28 and continued to be closed until the end of the fiscal year, June 30, 1930. Mention was made in last year's report of certain repairs to the boilers in the Natural History Building. Following the recommendation of the inspector of boilers these repairs were made during the latter part of the summer and will not have to be repeated in the near future as the boilers were placed in first-class condition. Under both headers the brickwork was all removed to permit the welders to make the necessary repairs, which consisted of building up the disintegrated steel at the seams and increasing the metal of the rivet heads. The two bottom rows of tubes were renewed in the four boilers as was one cast-iron baffle plate in No. 4 boiler.

There has been more or less trouble during the past winter with the supplementary boilers in the Arts and Industries Building used during the colder weather of the winter to supplement the heat supplied by the main plant because of the production of unlawful smoke. To overcome this, the hood on the smokestack was removed and a system of nozzles installed over the fire doors, whereby steam can be discharged directly above the fire bed.

The electric load on the plant has continued to increase at about the same ratio as in the last two or three years. The plant was operated a fewer number of days than last year, but produced more electric current. In view of the continual increase in the number of lights and equipment, it has reached the point where the electric load must be lightened or new equipment purchased, which would involve a great outlay, not only for additional units, but for boilers and other equipment. It is considered advisable to purchase a certain amount of electric current throughout the entire year for the exhibition halls of the Arts and Industries Building, which will cost about \$2,500. The purchase price of this current will entail a saving of approximately \$1,200 in the purchase of coal, so that the actual outlay will be approximately \$1,300.

It was hoped that a new layout for the domestic water service in the Natural History Building could be made during the year, but funds were not available to procure the necessary equipment.

The amount of coal used during the year in the operation of the plant was 3,502 tons, as well as 21 tons of stove coal used in the summer in the hot-water heater in the Natural History Building. The average cost of the coal by the ton for the year was \$5.65.

Electric current produced during the year totaled 655,253 kilowatt-hours, manufactured at a cost of \$0.0178 for each kilowatt-hour. The total cost of supplies used in generating electric current was \$4,136.59, and the labor in making repairs cost \$39.03.

The mechanical stokers have worn well considering the excessive loads that have been carried during the greater part of the winter.

The turnover in the force has been very little and less than in years past. During the time that the plant was closed down, the men connected therewith were granted the greater part of their annual leave. Those not on leave were used in making repairs and generally overhauling the plant, also in assisting the mechanics in regular work throughout the buildings. All of the steel work for the support of the steam main was remodeled by the regular employees. The entire structure was fabricated, the rivets driven, and the installation completed without outside assistance, thereby effecting a considerable saving.

Ice plant.—The ice plant, located in the Natural History Building, which furnishes ice for all of the Museum buildings, including the Smithsonian and Freer Gallery of Art, was operated at a total of 4,110 hours during the year, and produced 435½ tons of ice at a total cost of \$744.71, or at the rate of \$1.71 for each ton.

Fire protection.—The District Messenger Service boxes in the Natural History Building, Arts and Industries Building, and the Smithsonian have been tested at regular periods of time and found to be in a satisfactory condition. The fire-alarm signals in all of the buildings have been tested every three months, which makes four times during the year. None of them failed to ring in the proper signal, and the condition of all of the equipment is probably better than it has been in several years. During the summer months the steam fire pump is of no service in the Natural History Building, and danger, if a fire were to get a headway is greater, because of the fact that the water pressure on the top floor is very small, not sufficient to discharge the water more than a few feet from the nozzle. Money has been appropriated for the purchase of an automatic electric-driven pump which can be used during the summer or at any other time that may be deemed advisable or found necessary.

Furniture and fixtures.—The furniture added during the year included seven exhibition cases and bases; 308 pieces of storage, laboratory, and office furniture; and 2,244 drawers of various kinds. During the same period three exhibition cases and bases and 58 pieces of storage, laboratory, and office furniture were condemned as unfit for further use.

An inventory of furniture on hand on June 30, 1930, shows 3,741 exhibition cases and bases; 15,997 pieces of storage, laboratory, and

office furniture; 53,360 wooden unit drawers; 4,712 metal drawers; 16,950 insect drawers; 20,143 special drawers; 1,176 wooden boxes; and 533 wing frames.

MEETINGS AND RECEPTIONS

The United States National Museum, with its well-equipped auditorium and lecture room, offers its meeting facilities to organizations of like purposes for their regular and special meetings, assisting, so far as is possible, in carrying out their programs. The auditorium and the lecture room were utilized on 131 occasions during the year. The list of organizations, with the names of the speakers and titles of lectures delivered, follows:

1929

- July 18, 8.30 p. m. (room 43): The Vivarium Society.
 September 19, 8 p. m. (room 43): The Vivarium Society.
 September 21, 1 p. m. (room 43): Boy Scouts.
 September 28, 1 p. m. (room 43): Boy Scouts.
 October 3, 8 p. m. (room 43): The Entomological Society of Washington. Address by J. M. Aldrich on "Recent Entomological Experiences in Europe" and by F. L. Campbell on "How do Insects Grow." Exhibition of specimens.
 October 5, 2 p. m. (room 43): The National Association of Retired Federal Employees. Business meeting.
 October 5, 3.30 p. m. (room 43): Boy Scouts.
 October 8, 4.45 p. m. (room 43): Society for Philosophical Inquiry.
 October 12, 3.30 p. m. (room 43): Boy Scouts.
 October 15, 4.45 p. m. (room 43): Anthropological Society of Washington.
 October 17, 8 p. m. (room 42): Vivarium Society.
 October 19, 3.30 p. m. (room 43): Boy Scouts.
 October 19, 4.45 p. m. (room 43): The Helminthological Society of Washington.
 October 22, 3.30 p. m. (auditorium): Bureau of Chemistry and Soils, United States Department of Agriculture. Addresses by Hon. A. M. Hyde, Secretary of Agriculture; Dr. Henry G. Knight; and Dr. A. F. Woods.
 October 26, 3.30 p. m. (room 43): Boy Scouts.
 October 29, 11 a. m. (room 43): Annual meeting of the Smithsonian Relief Association.
 November 2, 2 p. m. (room 43): National Association of Retired Federal Employees. Business meeting.
 November 2, 3.30 p. m. (room 43): Boy Scouts.
 November 7, 8 p. m. (room 43): The Entomological Society of Washington. Address by R. E. Snodgrass on "How Insects Fly," with exhibition of specimens.
 November 9, 3.30 p. m. (room 43): Boy Scouts.
 November 12, 4.45 p. m. (room 43): Society for Philosophical Inquiry.
 November 13, 11.30 a. m. (auditorium): Forest Service, United States Department of Agriculture. Illustrated lecture by Dr. Will C. Barnes of the United States Geographic Board, on "Norway, Sweden, and Denmark."
 November 19, 4.45 p. m. (room 43): The Anthropological Society of Washington.
 November 21, 8 p. m. (room 43): The Vivarium Society.

- November 23, 3.30 p. m. (room 43) : Boy Scouts.
- November 26, 10 a. m. (room 43) : Radio museum committee.
- December 5, 8 p. m. (room 43) : The Entomological Society of Washington. Address by F. W. Poos on "Leaf Hopper Injury to Legumes."
- December 7, 2 p. m. (room 43) : The National Association of Retired Federal Employees. Business meeting.
- December 7, 3.30 p. m. (room 43) : Boy Scouts.
- December 10, 4.45 p. m. (room 45) : The Society for Philosophical Inquiry.
- December 11, 11.30 a. m. (auditorium) : Forest Service, United States Department of Agriculture. Address by E. N. Munns on "Forest Conditions in Europe," illustrated with lantern slides.
- December 14, 3.30 p. m. (room 43) : Boy Scouts.
- December 17, 4.45 p. m. (room 43) : The Anthropological Society of Washington.
- December 19, 8 p. m. (room 43) : The Vivarium Society.
- December 20, 3 p. m. (auditorium) : United States Department of Agriculture. Address by Dr. H. H. Whetzel on "Plant Extension Methods."
- December 21, 3.30 p. m. (room 43) : Boy Scouts.
- December 21, 4.45 p. m. (room 43) : The Helminthological Society of Washington.
- December 26, 8 p. m. (auditorium) : The Geological Society of America. Address by Dr. Heinrich Ries, of Cornell University, the retiring president of the Society.
- December 28, 3.30 p. m. (room 43) : Boy Scouts.

1930

- January 3, 9 a. m. (auditorium) : National Geographic Society. Making motion picture for Dr. A. E. Douglass of his investigation of tree rings in New Mexico.
- January 4, 2 p. m. (room 43) : The National Association of Retired Federal Employees.
- January 4, 3.30 p. m. (room 43) : Boy Scouts.
- January 7, 4 p. m. (room 43) : Howard University medical students under auspices of Dr. Paul Bartsch. Address by Doctor Bartsch.
- January 7, 8 p. m. (auditorium) : The Anthropological Society of Washington. Address by Dr. Fay-Cooper Cole, University of Chicago, on "The Coming of Man," illustrated.
- January 9, 8 p. m. (room 43) : The Entomological Society of Washington.
- January 11, 3.30 p. m. (room 43) : Boy Scouts.
- January 14, 4.45 p. m. (room 43) : The Society for Philosophical Inquiry.
- January 14, 8 p. m. (auditorium) : Washington Academy of Sciences. Address by Dr. Aleš Hrdlička on "Organic Evolution."
- January 15, 7 p. m. (auditorium) : Maryland-Virginia Farmers' Marketing Association. Business meeting.
- January 16, 4 p. m. (room 43) : Howard University medical students. Address by Dr. Paul Bartsch.
- January 16, 8 p. m. (room 43) : The Vivarium Society.
- January 18, 3.30 p. m. (room 43) : Boy Scouts.
- January 18, 4.45 p. m. (room 43) : The Helminthological Society of Washington.
- January 21, 4 p. m. (room 43) : Howard University medical students. Address by Dr. Paul Bartsch.

January 21, 8.30 p. m. (auditorium) : The Anthropological Society of Washington. Address by Dr. Aleš Hrdlička on "The Differentiation of Man into Races and his Spread over the Earth." Business meeting followed.

January 23, 4 p. m. (room 43) : Howard University medical students. Address by Dr. Paul Bartsch.

January 25, 3.30 p. m. (room 43) : Boy Scouts.

January 28, 4 p. m. (room 43) : Howard University medical students. Address by Dr. Paul Bartsch.

January 30, 8 p. m. (room 43) : The Wild Flower Preservation Society (Inc.). Illustrated lecture by P. L. Ricker, president.

February 1, 2 p. m. (auditorium) : Forest Service, United States Department of Agriculture. Exercises commemorating the twenty-fifth anniversary of the Forest Service. Lantern slides and comments by Edward E. Carter, Assistant Forester. Also addresses by R. Y. Stuart, Forester; R. W. Dunlap, Assistant Secretary of Agriculture; Senator Charles L. McNary; Representative John D. Clarke, Roy O. Woodruff, Scott Leavitt, and Harry L. Englebright; Henry S. Graves, dean of Yale Forest School; and Hon. Gifford Pinchot. Music by United States Army Band.

February 1, 2 p. m. (room 43) : The National Association of Retired Federal Employees.

February 1, 3.30 p. m. (room 43) : Boy Scouts.

February 4, 8.30 p. m. (auditorium) : The Anthropological Society of Washington. Illustrated lecture by Dr. Clark Wissler on "The Culture Area."

February 6, 8 p. m. (room 43) : The Entomological Society of Washington.

February 8, 3 p. m. (auditorium) : The Graduate School, United States Department of Agriculture. Lecture delivered by Dr. John R. Commons of the University of Wisconsin.

February 8, 3.30 p. m. (room 43) : Boy Scouts.

February 11, 4.45 p. m. (room 43) : The Society of Philosophical Inquiry.

February 15, 3 p. m. (auditorium) : The Graduate School, United States Department of Agriculture. Address by Prof. F. K. Knight of the University of Chicago.

February 15, 3.30 p. m. (room 43) : Boy Scouts.

February 15, 8 p. m. (auditorium) : The Helminthological Society of Washington. Motion pictures shown by Dr. Paul Bartsch.

February 18, 8.30 p. m. The Anthropological Society of Washington. Illustrated lecture by Dr. Herbert J. Spinden, Brooklyn Institute of Arts and Sciences, on "The Civilization of Middle America." Business meeting followed.

February 20, 8.15 p. m. (auditorium) : The Washington Academy of Sciences. Illustrated lecture by Prof. E. W. Berry of Johns Hopkins University, on "Origin and Evolution of Plants."

February 21, 3 p. m. (auditorium) : The Graduate School, United States Department of Agriculture. Address by E. A. Goldenweiser of the Federal Reserve Board.

February 27, 8 p. m. (room 43) : The Wild Flower Preservation Society. Illustrated talk by Dr. E. T. Wherry on "Ferns and Wild Flowers."

March 1, 2 p. m. (room 43) : The National Association of Retired Federal Employees.

March 1, 3.30 p. m. (room 43) : Boy Scouts.

March 4, 8.30 p. m. (auditorium) : The Anthropological Society of Washington. Illustrated lecture by Neil M. Judd on "Prehistoric Pueblos and Cliff Dwellers of the Southwest."

March 6, 8 p. m. (room 43): The Entomological Society of Washington. Illustrated lecture on "Insect Pests and Mites related to the Mushroom Industry," by O. E. Gahn.

March 8, 3 p. m. (auditorium): The Graduate School, United States Department of Agriculture. Address by Dr. J. D. Black.

March 8, 3.30 p. m. (room 43): Boy Scouts. Address by Mr. Ira Edwards.

March 11, 4.45 p. m. (room 43): The Society for Philosophical Inquiry.

March 13, 8 p. m. (room 43): Potomac Garden Club. Business meeting.

March 15, 3 p. m. (auditorium): The Graduate School, United States Department of Agriculture. Address by Mr. Edwin G. Nourse, economist.

March 15, 3.30 p. m. (room 43): Boy Scouts. Illustrated talk by Dr. W. F. Foshag on "A Trip Through Death Valley."

March 15, 4.45 p. m. (room 43): The Helminthological Society of Washington.

March 17, 2 p. m. (auditorium): Twentieth Century Club and Federation of Women's Clubs. Illustrated lecture by Dr. Aleš Hrdlička on "Anthropology."

March 18, 4.45 p. m. (room 43): The Anthropological Society of Washington. Address by Dr. John R. Swanton on "New Facts Regarding the Creek Social Organization."

March 20, 8 p. m. (room 43): The Vivarium Society.

March 20, 8 p. m. (auditorium): Washington Academy of Sciences. Illustrated address by Dr. Paul Galtsoff on "Sponges."

March 22, 3.30 p. m. (room 43): Boy Scouts. Address by E. P. Henderson on "South Africa."

March 27, 8 p. m. (room 43): The Wild Flower Preservation Society (Inc.). Motion pictures shown by P. L. Ricker, president, and talks by several members.

March 29, 3.30 p. m. (room 43): Boy Scouts. Address by H. E. Ewing on "Insect Collecting."

April 2, 11.30 a. m. (auditorium): Forest Service, United States Department of Agriculture. Motion pictures on forestry shown.

April 2, 8 p. m. (auditorium): Washington Society of Engineers. Illustrated lecture by Col. Merian C. Cooper, on "The Migration of the Baktyari, a Mountain Tribe in Persia." Also motion picture entitled "Grass," which Colonel Cooper directed in 1924.

April 3, 8 p. m. (room 43): The Entomological Society of Washington. Addresses by Dr. J. M. Aldrich on "Forty Years of Dipterology," by W. V. Balduf on "Habits and Taxonomy of the Chalcids," and by E. A. Chapin on "Exotic Scarabaeidae imported into the United States."

April 5, 2 p. m. (room 43): The National Association of Retired Federal Employees. Business meeting.

April 5, 3.30 p. m. (room 43): Boy Scouts. Address by Dr. H. E. Ewing on "Insect Collecting."

April 8, 4.45 p. m. (room 43): The Society for Philosophical Inquiry.

April 12, 3.30 p. m. (room 43): Boy Scouts. Address by H. S. Barber on "Preparation and Care of Insects."

April 15, 4.45 p. m. (room 43): The Anthropological Society of Washington.

April 16, 8 p. m. (auditorium): The Washington Academy of Sciences. Address by Dr. Charles B. Davenport, Carnegie Institution of Washington, on "Mechanism of Organic Evolution." Illustrated.

April 17, 8 p. m. (room 43): The Vivarium Society.

April 19, 3.30 p. m. (room 43): Boy Scouts.

April 19, 4.45 p. m. (room 43): The Helminthological Society of Washington.

April 24, 3.30 p. m. (auditorium): The Graduate School, United States Department of Agriculture. Address by Dr. David Miller on "New Zealand." Illustrated.

April 26, 3.30 p. m. (room 43): Boy Scouts.

April 30, 10 a. m. (room 43): Food, Drug, and Insecticide Administration, United States Department of Agriculture. Public hearing held by food standards committee.

May 3, 2 p. m. (room 43): The National Association of Retired Federal Employees.

May 3, 3.30 p. m. (room 43): Boy Scouts.

May 8, 10 a. m. (auditorium): Seventh National and Fifth International Oratorical Contest. The Evening Star area. Speakers for preliminary contests: J. Loren Freund, of Gonzaga College, Washington, D. C.; Miss Virginia Carr, Oakton High School, Virginia; and Miss Frances Gertrude McKim, St. Mary's Seminary, St. Mary's City, Md.

May 8, 8 p. m. (auditorium): Washington Glider Club. Three reels of motion pictures shown—"The Birds of Laysan."

May 10, 3.30 p. m. (room 43): Boy Scouts.

May 13, 4.45 p. m. (room 43): The Society for Philosophical Inquiry.

May 15, 8 p. m. (room 43): The Vivarium Society.

May 15, 8 p. m. (auditorium): The Washington Academy of Sciences. Illustrated lecture by Dr. Maynard M. Metcalf on "Evolution."

May 17, 3.30 p. m. (room 43): Boy Scouts.

May 17, 4.45 p. m. (room 43): The Helminthological Society of Washington.

May 22, 8 p. m. (auditorium): Washington Glider Club. Business meeting.

May 24, 3.30 p. m. (room 43): Boy Scouts.

May 27, 11.30 a. m. (auditorium): The sixth annual national spelling bee.

June 7, 2 p. m. (room 43): The National Association of Retired Federal Employees.

June 7, 3.30 p. m. (room 43): Boy Scouts.

June 18, 19, 20, 9 a. m. (room 43): United States Public Health Service. Annual conference of State and Territorial health officers with the Public Health Service. Opening address by Surgeon General H. S. Cumming. Other speakers: Dr. Alphonse Lessard, Provincial Bureau of Health, Quebec; Dr. R. C. Williams, assistant surgeon, Public Health Service; Dr. Charles Armstrong, surgeon; and Dr. M. V. Veldes, surgeon, Public Health Service. On June 19, addresses by Dr. Frederick E. Trotter, Hawaii; Dr. W. H. Frost, Johns Hopkins University. June 20, addresses by Dr. Ray Lyman Wilbur, Secretary of the Interior; Dr. E. L. Bishop, Tennessee; Dr. G. H. Bigelow, of Massachusetts.

June 18 to 24, 9 a. m. (auditorium and rooms 38-39-40): Extension Service, United States Department of Agriculture. Conferences in connection with the 4-H Club camp. Addresses by C. H. Warburton; C. B. Smith; Hon. Arthur M. Hyde, Secretary of Agriculture; Hon. Ray Lyman Wilbur, Secretary of Interior; Hon. James C. Stone, of the Federal Farm Board; Hon. Florence E. Allen, Judge, Ohio Supreme Court; and Nils A. Olsen, Chief of the Bureau of Agriculture Economics. After the adjournment of the meeting the members of the 4-H Club were taken through the Natural History Building by the Museum curators in groups of 25.

Memorial meeting.—A memorial meeting was held in room 43 at 11 o'clock, August 16, 1929, to commemorate the services of the late

Dr. George P. Merrill, head curator of geology, United States National Museum. Doctor Wetmore presided, and among those who spoke of their relations with Doctor Merrill and his contributions to science were Drs. David White, T. W. Stanton, Leonhard Stejneger, Marcus Benjamin, W. F. Foshag, W. T. Schaller, T. S. Palmer, Whitman Cross, and F. W. Clarke, and Messrs. C. W. Gilmore and W. C. Mendenhall.

Receptions.—On the evening of December 10, 1929, the formal opening of the Henry Ward Ranger collection of paintings was held in the National Gallery, from 9 to 11 o'clock. Only the north hall, first floor, was open on this evening. This included the gallery rooms and the hall containing the ethnological exhibits. Although there was no formal receiving line, the secretary, Doctor Abbot, the assistant secretary, Doctor Wetmore, and other Smithsonian officials were present.

The District of Columbia section of the Woman's Auxiliary to the American Institute of Mining and Metallurgical Engineers arranged a reception in the National Gallery on the evening of December 26, in connection with the meeting of the Geological Society of America, whose ladies were the guests of honor. The foyer on the ground floor, the rotunda, and the geological exhibition halls on the first and second floors, as well as the halls of the National Gallery, were thrown open to the visitors.

CHANGES IN ORGANIZATION AND STAFF

The organization of the Museum has continued without definite modification but with a number of changes in personnel. The result of recent increases in salary is becoming apparent in the greater stability and the improved morale of the Museum force.

The death of George P. Merrill on August 15, 1929, deprived the Museum of one of its most distinguished leaders, since Dr. Merrill had been head curator in charge of the department of geology from the establishment of the department in 1897—the last of the three scientists called at that time to administer the three subdivisions into which the Museum collections were then for the first time organized. On October 1, 1929, Dr. Ray S. Bassler, who had long served as curator of stratigraphic paleontology under Doctor Merrill, was advanced to succeed him as head curator of the department. Dr. Charles E. Resser, who had been associate curator, succeeded to the curatorship of the division of stratigraphic paleontology on December 1. In the division of mineralogy and petrology William F. Foshag was promoted from assistant curator to curator on September 1, and on November 16, Edward P. Henderson was appointed assistant curator in the division of physical and chemical geology.

The activities of this latter division have been placed under direction of Doctor Foshag.

In the department of biology, Dr. Charles W. Richmond, who as associate curator had long borne the administrative burden of the division of birds, was given the title of curator on July 1. Dr. Herbert Friedmann, who was appointed curator of the division on September 16, relieved Doctor Richmond, by his request, of administrative routine and permitted Doctor Richmond greater opportunity for continuing his scientific investigations again as associate curator.

Reorganization in the division of ethnology of the department of anthropology brought advance in status to H. W. Krieger, curator, and H. B. Collins, jr., assistant curator.

The honorary appointment of Albert C. Smith as collaborator in the division of plants expired on February 14; that of George Grant MacCurdy as collaborator in anthropology was extended for one year from April 24, and that of James Townsend Russell, jr., as collaborator in Old World archeology for one year from May 13, 1930.

Paul E. Garber, assistant curator in mineral and mechanical technology, returned to the Museum on November 1, after leave of absence of six months. T. Dale Stewart, aide in the division of physical anthropology, was on furlough from October to June, to enable him to continue his college course, and Charles S. East, of the preparatory force, was granted four months' leave in the spring to attend military school.

Julian S. Warmbath was appointed taxidermist on October 1, succeeding the late C. E. Mirguet. On March 22 recognition was given to two of the preparators, William H. Egberts being made chief preparator of the department of anthropology, and Norman H. Boss chief preparator in vertebrate paleontology.

In the Museum library, Miss Isabel L. Towner, assistant librarian in charge, resigned on September 7 and Miss Ethel A. L. Lacy, chief of the accession department, severed her connection on September 15. Miss Gertrude L. Woodin was appointed as successor of the latter on November 1, and Miss Leila G. Forbes succeeded as assistant librarian in charge on November 16.

In the department of administration Mrs. Florence L. Grock was promoted on July 1, 1929, to principal accounting and auditing assistant, succeeding Mr. W. H. Kimball, who had retired.

The watch force was strengthened on July 1, 1929, and morale improved by the appointment of three sergeants, promoted from the ranks, namely, Michael Cahillane, Clarence R. Kyte, and William H. Smith. The former was advanced to lieutenant on August 16 (upon

the retirement of Lieut. A. C. Dufresne), and William H. Vanneman succeeded on September 1 to the vacant sergeancy.

Three employes left the service through the operation of the retirement act, as follows: Edgar W. Hanvey, who for nearly 32 years had served as cabinetmaker on the mechanical force; A. C. Dufresne, after 18 years on the guard force, the last 11 as lieutenant of the watch; and Carl A. Ohlson with nearly 18 years service as a watchman in the Museum. Mr. Dufresne was in poor health and lived only until January 17, 1930.

Besides Doctor Merrill, head curator of geology, already mentioned, the Museum lost by death one honorary and six active workers of its staff, as follows: Dr. Jesse Walter Fewkes, collaborator in ethnology; Miss Ava L. Bennett, of the clerical force; Robert M. Campbell, bricklayer and plasterer; Ira W. Johnson, oiler; William L. Brawner and Walter J. Ferguson of the watch force; and Mrs. Alberta Buchanan of the char force.

Dr. George Perkins Merrill, head curator of geology, died suddenly at Auburn, Me., on August 15, 1929, while absent on a vacation. Born at Auburn on May 31, 1854, he received his early education in Maine, graduating from the University of Maine with the degree of B. S. in 1879. Doctor Merrill became connected with the United States National Museum in 1880, serving first as aide, and then as curator. In 1897 he was appointed head curator of geology, which position he held until the time of his death.

Doctor Merrill saw the department of geology enlarge from a comparatively few specimens assembled by the United States Land Office and collected by the early surveys of the country, to its present position among the great geological collections of the world. Its advanced status is due to his devotion and untiring efforts. During his years of scientific work in the Museum, his versatility in the field of geology was demonstrated by the breadth of subjects that he covered. His books on *Stones for Building and Decoration*, *Rock-weathering and Soil Formation*, and *Nonmetallic Minerals*, are recognized as standard works in their line, and in later years he was a foremost authority on the subject of meteorites, publishing many papers on the subject. He also published much in connection with the historical aspects of the development of the science of geology in the United States.

His last literary effort was a history of the department of geology, prepared for the archives of the Museum.

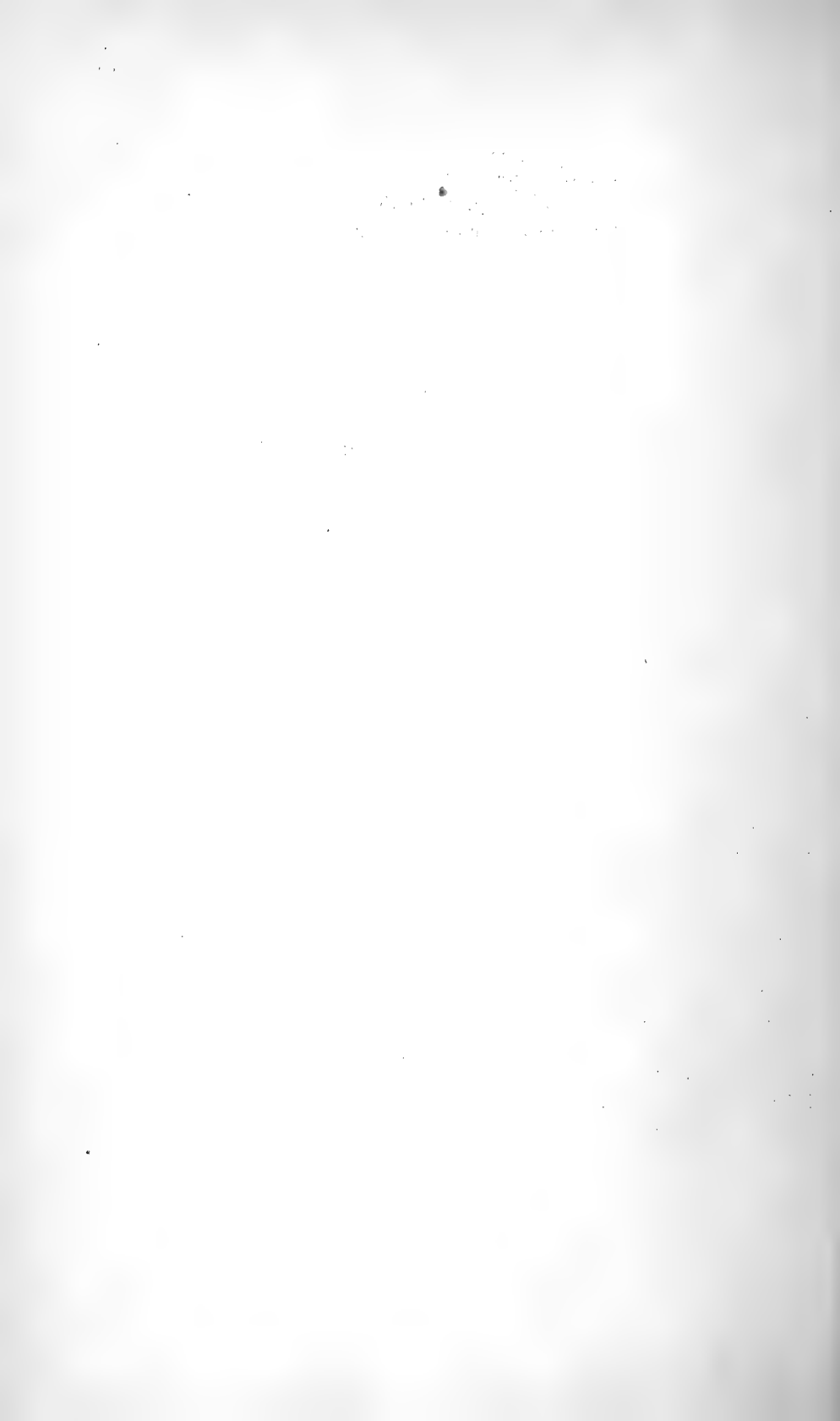
Direct in mind and staunch in his ideals Doctor Merrill's first thought was always that of loyalty to the institution. In all that he did he was highly conscientious and while firm in his ideas was ready always to carry forward administrative policies even when

these for various reasons were contrary to his own mind. His work in its entirety was distinctly constructive and progressive so that he has left behind accomplishment that may well merit the consideration of others now active in similar fields.

Dr. Jesse Walter Fewkes, collaborator in ethnology, died on May 31, 1930. Doctor Fewkes was born at Newton, Mass., on November 14, 1850. He received his collegiate training at Harvard, graduating with the degree of Ph.D. in 1877, and did further work at the University of Leipzig from 1878 to 1880. As a pupil of Louis Agassiz he had become well known as a marine zoologist before he took up investigations in anthropology. After several years work in the Southwest as director of the Mrs. Mary Hemenway southwestern expedition, in 1895 he was appointed ethnologist in the Bureau of American Ethnology, where he remained until in 1918 he was made chief of the bureau. During the years of his connection with the Smithsonian he performed a great amount of research work concerned with the Southwest, the West Indies, and Mexico. The results of this form a valuable contribution to scientific literature. Likewise notable are the large collections of objects of cultural material excavated from ruins principally in the Southwest that have come to the Museum from the bureau through his interest. This body of material is in many respects unrivalled elsewhere.

Doctor Fewkes made distinct contribution to general education through his work in repairing as archeological monuments type ruins such as those at Mesa Verde and Casa Grande. He was first to record Indian songs on the phonograph and among his various discoveries was the connection of present Hopi symbolism with that on prehistoric pottery. He accomplished much in the recording of Hopi religious ceremonies of which the monograph on the snake dance is best known.

An exceptional enthusiasm was the mark of all of his archeological and related researches and with his friendly and unassuming personality not only drew many friends, but also proved attractive to many other persons even on slight acquaintance. His life was long and productive in his particular fields of interest, and he accomplished more than the amount ordinarily allotted to those who devote themselves to scientific research.



DETAILED REPORTS ON THE COLLECTIONS

REPORT ON THE DEPARTMENT OF ANTHROPOLOGY

BY WALTER HOUGH, *Head Curator*

INTRODUCTION

Through important field investigations in various areas the department during the past fiscal year advanced markedly in material and observational data. Portions of Alaska, the Dominican Republic, Arizona, and Mississippi were explored, and at the close of the fiscal year covered by this report Doctor Hrdlicka and Mr. Collins are continuing work in Alaska.

ACCESSIONS FOR THE YEAR

Accessions in this department for the year numbered 162 with a total of 9,013 specimens, constituting a record in the addition of material. During the fiscal year 1928-29 there were received 92 accessions with 5,329 specimens. The greater bulk of the material recorded, being collected by members of the force, ranks especially high in scientific value. New material came to all of the divisions.

In ethnology 85 accessions totaled 6,432 specimens. The additional collections presented by C. C. Roberts, of Linden-Malden, Mass., during the current year are of particular importance, as they come from Nigeria and the Gold and Ivory coasts of West Africa, an area from which practically nothing had been previously accessioned by the National Museum until Mr. Roberts began his gifts. The Roberts collection includes artistically carved wooden masks coming from the Haussa, and from the upper Ivory Coast and from eastern Sierra Leone; leather work of the Fulah and Haussa tribes; ivory carvings from the Belgian Congo; carved wooden seats in the form of animal figurines from the Ashanti and upper Ivory Coast; pottery with gayly painted decorative designs from the Haussa and beautiful black ware from the Yoruba; and objects in cast brass from the Ashanti country, from Yoruba land, from Dahomey, from the Senegal, and from Togo land. The collection is particularly interesting from the manner in which anciently acquired European knowledge of metal craft and of other arts has been incorporated into the native culture pattern.

By transfer from the Department of Agriculture, through Dr. E. W. Brandes, of the Bureau of Plant Industry, a large and representative collection of stone axes, decorated human heads, examples of wood carving showing totemic art, articles of personal adornment, costumes, weapons, and related objects were added to our collections from New Guinea. This collection from British New Guinea, and from the Territory of Papua, supplements the Stirling collection from western or Dutch New Guinea, and gives us type material with which to properly label the many valuable specimens secured many years ago by Dr. W. L. Abbott.

Objects from such far away places as Tibet are always interesting. It was, therefore, especially gratifying to receive a collection presented by Charles S. Isham, of New York. Included are engraved prayer stones and other objects of a religious nature, such as altar bells, lamp, rosaries, revolving stone and metal prayer wheels, also a sacred book of prayer. This collection, including objects of personal adornment, headdresses, costume, and sacred banners, is from Lhasa and from a monastery near Leh. China yields reluctantly of its riches. Rev. David C. Graham, residing in Szechwan Province, collected ancient and modern pottery from that province, and also added to the pottery collection of the section of ceramics and division of archeology. Pottery lamps from western China were presented by Malcolm F. Farley; an old brass jail lock and key were given by J. R. Friedberg; a lacquered tray by Frank S. Zappulla; while a brass plaque and decorated ewer from Tibet were received as a loan from Lieut. S. O. Carter. Other accessions from foreign countries are small but useful nevertheless. From India came beautifully carved ivory filigree and miniatures of life forms, the gift of William Lilly; a wooden box made on a wheel like pottery, the gift of Frank S. Zappulla; also a sandalwood box carved with sacred designs, the gift of Miss Emma C. Cooke.

Among the several accessions of Alaskan material are three major collections—that of Doctor Hrdlicka from various sites along the Yukon River and representing Indian and Eskimoan tribes; the collection purchased from Capt. C. T. Pedersen from Point Hope, representing various phases of Eskimoan culture; and, finally, the collection obtained by Henry B. Collins, jr., assistant curator of the division, from St. Lawrence Island and sites on the Alaskan coast of Bering Sea and of Kotzebue Sound during field work financed by the Smithsonian Institution. This latter collection supplements the material collected by Mr. Collins during the preceding year from Punuk, St. Lawrence Island, and from the west coast of Alaska north of the mouth of the Yukon River. The collections mentioned represent a cross section of western Eskimo culture from the earliest times.

Very few tribes of American Indians now living in the area included in the United States proper are represented in the collections accessioned during the year. The time, no doubt, will soon arrive when tribes within the United States shall have become completely Americanized and it will no longer be possible to collect ethnological objects from the reservations. Our ethnological material should be derived more and more from Central and South American geographical areas as supplementary to the closed collections from continental North America south of Canada.

American archeology received 44 accessions comprising 1,396 specimens. The following are deemed worthy of special notice: 3 limestone blocks bearing painted decorations from the Maya Temple of Chac Mool, underlying the Temple of the Warriors at Chichen Itza, Yucatan, deposited by the Republic of Mexico, through its Secretaria de Educacion; 470 specimens collected by Dr. Frank H. H. Roberts, jr., from Pueblo I sites bordering Piedra River, southwestern Colorado, and transferred by the Bureau of American Ethnology; 350 stone, bone, shell, and earthenware objects collected by H. W. Krieger, of the National Museum, from a village site near the town of Monte Cristi, Monte Cristi Province, Dominican Republic, received from an expedition financed by Dr. W. L. Abbott; 233 stone, shell, and earthenware specimens collected by H. W. Krieger from village sites at Andres, Gulf of Boca Chica, and in Constanza Valley, Dominican Republic, also obtained through assistance by Dr. W. L. Abbott; 4 earthenware jars of exceptional artistic merit from Kintiel ruin, a prehistoric Pueblo village in east central Arizona, deposited by the Smithsonian Institution; 47 archeological specimens chiefly from Indian camp sites bordering the Columbia River in Klickitat County, Wash., presented by Charles Beckman, of Arlington, Oreg.; 79 stone, shell, and pottery objects from Indian camp sites on Kent Island, Queen Anne County, Md., one of which sites agrees in location with the Indian village of Tocwogh, reported by Capt. John Smith during his exploration of the upper Chesapeake Bay in 1608, presented by E. Carville Tolson, of Stevensville, Md.

Archeology received 16 accessions from the Old World, made up of 516 specimens. The following are deemed worthy of mention; 1. Sumerian seal and 4 Babylonian artifacts purchased through the Bruce Hughes Fund; 16 Assyrian and Babylonian tablets purchased by the Museum from N. J. Cotta, Washington, D. C.; a small bronze horse of exquisite workmanship excavated from the ruins of Pompeii in 1853 and presented by Mrs. Margaret Raviere Pendleton, Stoneleigh Court, Washington, D. C.; 419 artifacts from the Abri "Les Merveilles" (formerly Castel Merle), Sergeac, Dordogne,

France, collected by the American School of Prehistoric Research in 1929 and deposited by the Archaeological Society of Washington; an ivory bracelet recovered from an infant's mummy in an Egyptian grave and presented by Dr. O. R. Troje, Birmingham, Ala.

Physical anthropology received 18 accessions totalling 603 specimens. The accessions were both rich and exceptionally valuable. Some of these deserve special notice. The largest was that made by the curator on the Yukon, and represents material of much scientific value. It consists of many well identified and complete skeletons of both the Yukon Indians and Eskimo. The next in importance is the skeletal material collected by Henry B. Collins, jr., in the Bering Sea and Arctic regions. These as well as the Yukon collections will grow in value with the future, for they can never be duplicated or even materially added to; they represent all there was in many regions. The third and fourth valuable accessions are those of Florida material collected by C. Greenwood and Howard Sharp, of Canal Point, Fla., and which consisted mostly of skulls and bones of Florida Indians; and two skulls collected by James I. Mather. This material is of particular value just now in the course of preparation of a catalogue of crania of the Gulf people. A valuable skeletal collection has also been secured this year in the Dominican Republic by H. W. Krieger.

INSTALLATION AND PRESERVATION OF COLLECTIONS

The public exhibit is intended to display attractive specimens and types of materials serving an informative purpose. Additions to the fixed exhibit during the year were made in number, filling in gaps in the series. Thus rare Apache ceremonial specimens from Capt. John G. Bourke and Surg. J. B. White were placed in the Apache case. Dolls from several tribes of Indians were reinstalled after temporary removal, also pottery of the surviving southeastern Indians. The Abbott, Stirling, and Brandes New Guinea collections were brought together in an alcove. A case of Philippine art and utilitarian metal work was installed. An outlet for the temporary exhibit of recent accessions from explorations by the Smithsonian was found in the large central hall in the basement, and the remarkable stained ivory artifacts brought from Alaska by Doctor Hrdlicka, Mr. Collins, the Loman brothers, Dr. E. W. Nelson, and others, were put on display there. Besides the numerous minor installations, current work on mending and readjusting specimens was performed by the anthropological laboratory, and poisoning and insect prevention vigilantly performed by Mr. Allen.

In the northwest range a water bottle of painted earthenware from Guadalajara and a censer holder were added to a Mexican exhibit.

Bull roarers from the White Mountain Apaches, collected by Capt. J. G. Bourke; shaman's charms, collected by Dr. J. B. White; a saddle pouch and pack saddle, formerly the property of Geronimo, were placed on view in the Apache display. In the hall of the eastern and southern Indian, dolls from several tribes of the North American Indian were installed in a flat-top case; pottery of the southeastern Indians, principally from the J. E. Steere Catawba collection, was installed; a beaded bag, dated 1850, and a bow and quiver case were placed in the Osage exhibit, the latter specimen the gift of David I. Bushnell, jr. In the Asiatic hall to the north African exhibit there were added the following objects: Plaster model of the gate to the Alhambra in miniature, the gift of Mrs. Sarah T. Gardner; terra-cotta figurine of a camel; gold bracelet given by the Sultan of Zanzibar to Mrs. M. A. Shufeldt; wrought-iron stove from the Talcott Williams collection; Coptic Bible, eighteenth century, from the E. Deinard collection; Egyptian pottery drum; Persian copper plate. In the Christian religious exhibit case was placed a collection of silver reliquaries from the G. Brown Goode collection. Two Chinese vases from the David C. Graham collection were installed in the large central Chinese pagoda; and Chinese brides' headdresses, obtained through the Biological Survey, were placed on view. A Tibetan prayer book collected by Charles S. Isham, Hindu ivory carvings collected by William Lilly, a sixteenth century wooden figure of a Buddha, two plaques of decorated brass and a brass ewer from Tibet, collected by Lieut. S. O. Carter, were also shown. An India cashmere shawl, loaned by Mrs. Henrietta Cunningham, was added to the textile exhibit from southeastern Asia. Tapa cloth from the Hawaiian Islands, the gift of J. Townsend Russell, jr., was installed in case No. 24 (tapa cloth exhibit); and a manuscript of the psalter, lent by S. S. Howland, was placed in the Abyssinia case.

In the division of archeology Neil M. Judd reports progress in installations of new material. His previously announced plans for current improvement of the archeological collections were not realized owing to pressure of routine tasks and lack of skilled assistance. Part of the Utah exhibit was removed to storage to provide space for a small and not wholly representative series illustrating Doctor Roberts' newly received Pueblo I material from southwestern Colorado. No other major change has been made in the rearrangement of our exhibition hall. The Roberts collection has occupied much attention for the past 20 months. Because no equally comprehensive collection from Pueblo I village sites had previously reached this or any other institution, the curator felt justified, despite the fragmentary nature of the material, in concentrating his efforts upon this accession until the individual pieces were prepared for exhibition,

for study, or for exchange. There has been no change in the status of the collections during the year.

Under the supervision of Mr. Judd the installation of Old World material was carried out by J. Townsend Russell, jr., and marked progress was made. The Bruce Hughes fund gifts and a few others from among the newly accessioned specimens have been placed on exhibition. In addition, eight cases illustrating the prehistory of Europe, from the Eolithic through the Upper Paleolithic horizons, have been rearranged and brought into their proper sequence, and one case of Stone Age artifacts from Japan, received during the years 1880 and 1905, was installed. The necessary work of classification and arrangement was performed by Mr. Russell. A large lot of religious artifacts has been transferred from Old World archeology to the division of ethnology; others remain scattered through the collections.

In physical anthropology there were prepared for public exhibit this year 10 cases of the collateral (archeological) Alaskan collections obtained by the curator and three cases of osteological material. The status of the study collections in the division is good, although more and more the need of additional space for storage is felt. It should be remarked in this connection that the division would be capable of preparing public exhibits of the utmost interest and importance if it were provided with suitable means and space for such exhibits.

The collection of musical instruments in the Arts and Industries Building was kept in order and some additions exhibited. Hugo Worch, collaborator, whose great collection of pianos was given to the Museum, assisted in determining the age and history of instruments submitted for examination.

Some exhibits of new accessions were made in the ceramic gallery. A number of persons evinced interest in portions of this collection and were furnished information. Dr. S. W. Woodhouse, jr., collaborator, kindly identified specimens on which the curator was without data.

Transferring the art textile collection to the northwest basement hall of the Natural History Building greatly facilitated the rearrangement and beautification of the exhibit, which was carried out by R. A. Allen. Additional labels were prepared and steps taken to label the extensive collection of velvets and brocades. Acknowledgments are due to Miss Edith Long, a surviving member of the ladies lace committee, for her advice and aid in putting portions of the collection on view.

The anthropological laboratory under W. H. Egberts actively engaged in current restorations, repairs, and group model construction.

INVESTIGATION AND RESEARCH

In ethnology Mr. Krieger reports that Mr. Collins conducted excavations at old Eskimo sites at Cape Kialegak on St. Lawrence Island, Cape Denbigh, Imaruk Basin, and at Point Hope. Additional sites were examined in reconnaissance of the Alaskan coast from Norton Sound to Point Hope. The problem set for Mr. Collins is the tracing of culture sequences in western Alaska and on the contiguous islands of the Bering Strait as revealed in abandoned village sites of the historic and prehistoric Eskimo. The present season is the fourth during which ethnological and archeological investigations have been conducted by Mr. Collins in western Alaska. In cooperation with the Mississippi Department of Archives and History, represented by Messrs. Moreau B. Chambers and James A. Ford, Mr. Collins excavated at the site of an ancient Indian village in Yazoo County, Miss., during the month of January, 1930. The most important result was the finding of a large house site, the complete floor plan of which was traced by means of post holes. The structure was round, 60 feet in diameter, and was probably a council house somewhat similar to those described by early explorers from the Creek and Cherokee regions. During several months of late winter and spring of 1930 H. W. Krieger continued investigations of Arawak sites in the Dominican Republic. This work is in continuation of the extensive studies of Dr. W. L. Abbott in the island of Haiti and marks the third successive year of Mr. Krieger's work in the Dominican Republic. Investigations were carried on for a period of four months at the Arawak site on the Bay of Boca Chica, on the Caribbean coast, near the Dominican village of Andres, and later in the mountainous interior in the Provinces of La Vega and Azua with headquarters at the Dominican village of Constanza. Conclusive evidence regarding a great diversity with the Arawak culture on the island seems to preclude any possibility of the existence of a pre-Arawakan culture there except possibly in the Samaná caves. That is, what has previously been assumed to be products of a rude "Ciboney" culture is found in such intimate association with unmistakably Arawakan objects that both are undoubtedly related. The curator has published accounts of this work in the Smithsonian miscellaneous collections, also in Bulletin 147 of the United States National Museum. (See bibliography.) He is engaged in the preparation of manuscript for additional publications relating to these investigations. He is also preparing a series of descriptive articles with illustrations to serve as handbooks, guide leaflets, and a catalogue for the technical and cultural units of the collections in the division.

Research by students from other institutions and by investigators include the following: Dr. Warren K. Moorehead, of Phillips Academy, Andover, Mass., made a thorough study of American cutting implements from Alaska, principally those of ivory and stone collected by Doctor Hrdlicka and Mr. Collins. Miss Helen G. McCormack, of the Valentine Museum, Richmond, Va., spent a day at the division comparing descriptions and photographs of specimens in the Valentine Museum with corresponding material in the National Museum for the purpose of identifying and properly labeling the specimens in her charge. Much of the material compared is from the Haida, Nootka, and Kwakiutl Indians of British Columbia. Miss Gene Weltfish studied the basketry of the Mescalero and San Carlos Apache Indians, also of other basket-making tribes of the Southwest, with a view to tracing connections existing between the ancient basket-maker tribes and the modern Indians of the same area. Frederica de Laguna, a graduate student at Columbia University, who was a member of Dr. Therkel Mathiassen's 1929 Greenland expedition, spent a week studying the Alaskan material excavated by Henry B. Collins, jr. The historian, Grant Foreman, studied the Catlin paintings of Indian tribes and of scenes of possible usefulness to him in preparing a new volume on the history of the southern plains including the period 1830-1840. Hon. James V. McClintic, of Snyder, Okla., had photographs made of some 30 Catlin paintings depicting the games, customs, and individual types of Indian tribes of the southern plains. Photographs of specimens in the collections were made for several visitors and students. Typical examples of these are: Embroidered garments from the San Blas and Cuna Indians of southeastern Panama; a Sia vase; Catlin paintings; tribal types from Africa, Asia, and the two Americas; masks; pottery; agricultural implements; objects from the Pacific Islands, and others. Distinguished visitors were shown the exhibits. Methods employed in the laboratory, also in cataloguing specimens were explained. Particular interest was shown in the routing of accessions and in the cataloguing of specimens. A few of these visitors were Dr. Max Uhle, Peru; Dr. Bogoras Tan, Leningrad; Doctor Thalbitzer, Sweden; Dr. H. E. Gregory, Bishop Museum, Honolulu; Dr. M. D. C. Crawford, textile expert; Miss Frances Densmore, expert student of Indian music, and others. Exhibits studied by special students in addition to those mentioned were wampum, totem poles, Seminole Indians, medicine drum of Chippewa, and the S. P. Verner collection of African baskets. Temporary loans were made of material from our collections for short exhibits by the Department of the Interior, Department of State, and the War Department, also to the Bureau of American Ethnology students, notably J. P. Harrington, who studied the Hupa material, and Miss Densmore.

Indian moccasins became the object of intense study during the early part of the year owing to the recent vogue of a new type of galosh with reversible flap. Statement of infringement of the right to manufacture this flap was based on the assumption that several Indian tribes practiced the art of making moccasins with a reversible flap. Apparently there is a greater demand for expert opinion in identifying art textiles, ceramics, furniture, glass, and Americana generally, than for strictly aboriginal objects. Fourteen lots of material were received for examination and identification.

The head curator visited museums in Boston, Salem, New York, and Philadelphia, studying housing and arrangement of museum material. The curator of ethnology spent a week in New York City examining collections in the several museums there pertaining to the archeology of the West Indies. Visits were made by the assistant curator, Mr. Collins, to Field Museum, Chicago; also to the Canadian National Museum for the purpose of conferring with the staffs of the respective museums regarding phases of Eskimoan archeology.

Informally the curator of archeology has continued to assist, when called upon, the National Park Service, National Research Council, National Geographic Society, the Archaeological Society of Washington, the Anthropological Laboratory of Santa Fe, N. Mex., and other organizations. Twenty-one lots of material were received for identification and report. During March the curator visited Peabody Museum of Harvard University to select for the national collections certain archeological objects offered in exchange; and also the Peabody Museum of Phillips Academy, Andover, to examine collections from Pecos Pueblo, N. Mex., which later will be presented to the National Museum. On April 20 a brief visit was made to Kent Island, Md., to determine the acceptability of a local archeological collection offered the Museum by E. Carville Tolson. On May 9 the curator, accompanied by M. W. Stirling, Chief of the Bureau of American Ethnology, made a week-end visit to the scene of the investigations of D. I. Bushnell, jr., near Charlottesville, Va.

The researches by the curator of physical anthropology were directed essentially to the studies of the Alaskan problems and native populations; to studies relating to the origin and antiquity of man, and to studies on animal-like manifestations in the human infant. The aid in the division, T. D. Stewart, has carried on an interesting study on the "Relation of Dental Caries to Race and Condition."

During the year there were almost constantly from one to three outside scientific men working in the division in lines of original investigation. The principal of these students were: Dr. J. Maly,

of Prague, Czechoslovakia, sent to us by the Rockefeller Foundation, who accompanied the curator to Alaska to become acquainted with the practical problems of field anthropology, and who received anthropometric and other instruction in the division; Dr. S. H. Sankas, of Siam, sent also by the Rockefeller Foundation, who, for over four months, studied anthropometry and worked in original research on the relations of the size of the brain in the two sexes to the external dimensions of the head and the skull; Prof. C. J. Connolly, of Catholic University, Washington, D. C., who for many months carried on investigations on our brain collections; Dr. Sterling V. Mead and his assistants, who, also for several months, carried on research on teeth. Those who spent a shorter time in the division are as follows: Prof. John Cameron, of Dalhousie University, Halifax, Nova Scotia, who studied some crania the earlier part of June, 1929; Alton K. Fisher, of the Milwaukee Public Museum, September, 1929, who examined Wisconsin skeletal material for its dental pathology; Richard H. Post, of Cold Spring Harbor, who visited the division the latter part of September, 1929, and took notes on anthropometry; C. H. McCloy, of the Iowa Child Welfare Research Station, University of Iowa, November, 1929, who came in connection with child studies; Dr. William L. Straus, Johns Hopkins Medical School, who examined cast of the Neanderthal pelvis, December 27, 1929; Dr. Edward C. Kirk, of Philadelphia, who was here January, 1930, to examine lower jaws.

Three lots of specimens were received for examination and report during the year.

DISTRIBUTION AND EXCHANGE OF SPECIMENS.

In ethnology three lots, including a total of 55 specimens, were distributed as gifts. The largest of the gift collections, totaling 31 objects of pottery and arts of the Pueblo Indians, was sent to the Park Museum, Providence, R. I. The return of a loan collection from the Actinic Institute, Paris, should be noted here. The collection, prepared by the head curator, had to do with the rays of the sun and included ceremonial and utilitarian objects. The ceremonial material consisted of costumes worn by the Hopi Indians during their winter ceremonial, figurines depicting the sun goddess, a legendary sun basket in which the sun was caught, a sun shield showing the sun god painted in native pigments, also selenite and quartz crystals used in reflecting the sun's rays in making magic medicine. All this material came from the Hopi. Among the utilitarian objects were sun goggles and wooden visors from the Alaskan Eskimo.

A gift of 25 pieces of Pueblo pottery was made to the Nativity School, Washington, D. C. A colored cast of an Eskimo stone lamp was given to the Ohio State Museum, Columbus, Ohio. An uncata-

logued Red Cross flag, presumably from a Spanish-American War collection, was returned to the American Red Cross, Washington, D. C. Withdrawals for the year were small in number, including a total of four accessions totaling 169 specimens. Included were examples of Moro brass, art objects from Burma, and a miscellaneous lot of Indian objects from several western Indian tribes.

Exchanges made up a small amount of the division's business for the year. Specimens distributed as exchange material include Philippine textiles, a Chinese water cup, a sandalwood box, and a Persian jewel box, a total of 12 specimens. A courtesy exchange by the Alaska Agricultural College was the loan of three stone adzes from Alaska for purposes of making casts of each of them for our Museum collection. The adzes were returned with casts of each to the Alaska Agricultural College. A package of ethnological material containing bows and arrows from North American Indian tribes was loaned to the Department of Agriculture for the Bureau of Biological Survey through Dr. Paul G. Redington, chief, for use in connection with an exhibit in Europe of North American wild life. One lot of illustrations extracted from Bulletin 141, United States National Museum, illustrating heating and lighting utensils in the Museum, written by Dr. Walter Hough, was loaned to the Ohio State Museum, Columbus, Ohio, for use in an exhibit of primitive heating and lighting devices. A group of Ceylonese mannikins and Javanese marionettes was loaned to the Maryland Institute in Baltimore for use in connection with a display of marionettes by Mr. Paul. Mr. Paul later called and received the loan of several additional mannikins and marionettes. The revival of the use of marionettes is an interesting development of the drama and was initiated some years ago by Tony Sarg. Subtracting the loans and other temporary withdrawals, a total of 238 specimens was separated from the division.

During the fiscal year just closed the following five lots of material have been sent from the division of American archeology either as gifts or in exchange: (1) Plaster cast of an adze, sent to Dr. A. Gerend, Westphalia, Mich., in exchange for the courtesy of allowing the Museum to reproduce the original; (2) a facsimile of the Tuxtla statuette was presented to the department of anthropology, University of Pennsylvania, Philadelphia, Pa.; (3) a duplicate cast of the same specimen was presented to the department of middle American research, Tulane University, New Orleans, La.; (4) thirteen archeological specimens from the Chiriqui Province, Panama, were presented to the Museo Nacional, Dominican Republic; and (5) three stone implements were forwarded to the Norton Company, Worcester, Mass., in exchange for past courtesies.

In Old World archeology two Tanagra figurines lent by Mrs. J. Ryan Devereux, 3 West Bradley Lane, Chevy Chase, Md., in 1922, were withdrawn by the owner; and a specimen lent by Hon. Hoffman Philip, Washington, D. C., in 1919, was withdrawn by the owner.

An Eskimo skull was sent to Mr. Claud S. Grow, Ogden, Utah, by physical anthropology in exchange for a human skeleton from his State. A series of lower and upper jaws, showing impacted teeth, was loaned to Dr. Stirling V. Mead for exhibition at the Washington meeting of the American Dental Association in October, 1929.

NUMBER OF SPECIMENS UNDER DEPARTMENT

During the year the department of anthropology received 162 accessions comprising 9,013 specimens. Of these, 4 accessions with 29 specimens were loans, a permanent gain of 8,984 specimens. The inflow was distributed as follows: Ethnology, 85 accessions with 6,432 specimens; American archeology, 44 accessions and 1,396 specimens; Old World archeology, 16 accessions of 516 specimens; physical anthropology, 18 accessions comprising 603 specimens; musical instruments, 1 accession of 1 specimen; ceramics, 10 accessions with 56 specimens; and art textiles, 4 accessions and 9 specimens.

On June 30, 1930, the total number of specimens in the department was 685,754, as follows:

Ethnology -----	176, 322
American archeology-----	431, 751
Old World archeology-----	36, 635
Physical anthropology-----	31, 787
Musical instruments-----	2, 069
Ceramics -----	5, 749
Art textiles -----	1, 441
	<hr/>
	685, 754

REPORT OF THE DEPARTMENT OF BIOLOGY

By LEONHARD STEJNEGER, *Head Curator*.

The past year may be characterized as satisfactory both as to progress made in the building up of our collections and as to high quality of the scientific work based upon these treasures. The condition of the collections has been maintained on the level of previous years with improvements introduced where practicable. The prospect of additional space in the new wings authorized for the Natural History Building promises needed expansion for the future.

The greater opportunities now offered in field work for members of the staff have been an essential factor not only in complementing the collections, but also in improving the character of the work based on them. Field work and explorations initiated but not terminated during the fiscal year 1928-29 have all been concluded. Dr. Frederick V. Coville, honorary curator, division of plants, returned in July from an excursion to Java where he was a delegate on behalf of the United States Government to the Fourth Pan-Pacific Scientific Congress; the expedition of E. P. Killip, associate curator of plants, in conjunction with A. C. Smith and W. J. Dennis to eastern Peru and Amazonian Brazil, returned in November with a collection of approximately 27,000 plants; Dr. J. M. Aldrich, associate curator of insects, completed a successful collecting trip to boreal Norway and Sweden. On his return he stopped at various European museums to examine and make notes on the types of American muscoid flies. In the middle of May, 1930, Doctor Aldrich collected diptera in the higher mountains of Idaho, Washington, Oregon, and northern California. The expedition under the auspices of the Walter Rathbone Bacon scholarship fund to West Indian Islands, undertaken by Dr. Paul Bartsch, curator of mollusks, covered parts of Cuba, Haiti, and Porto Rico, practically all of the Lesser Antilles, and the islands off the northern coast of South America. The material gathered for study is estimated to aggregate about 100,000 specimens, the finest series of land mollusks ever brought together from the region. Doctor Bartsch began in May, 1930, a thorough exploration of the mollusk fauna of the southern Bahama Islands. The Smithsonian-Parish expedition to certain outlying and seldom visited islands along the coasts of Cuba and Haiti was accompanied

by W. M. Perrygo, assistant scientific aide in the Museum, from February 15 to May 28, and brought back large and well-preserved collections, especially birds, reptiles, and fishes. Dr. A. S. Hitchcock, custodian of the Grass Herbarium, spent part of the summer and autumn of 1929 in South and East Africa, collecting and studying grasses. Mrs. Agnes Chase, also of the Grass Herbarium, made an expedition to Brazil during the months from October to May, obtaining a collection of more than 2,500 numbers. The explorations of Dr. D. C. Graham in Szechwan, western China, this year extended into Muping, a famous type locality of many species. Dr. Hugh M. Smith, associate curator in zoology, continued zoological explorations in Siam. Dr. A. Wetmore, during a brief visit to northern Spain, devoted his time to ornithological study and collecting. Several members of the Museum staff undertook shorter excursions. Thus H. H. Shamel, of the division of mammals, during about three weeks in May was detailed to collect in southwestern Missouri and eastern Kansas, and E. D. Reid, aide of the division of fishes, visited the mountain region of southwestern North Carolina and Georgia. Dr. Remington Kellogg, assistant curator in the division of mammals, was absent on a paleontological expedition to Alabama in October, 1929. W. L. Brown, chief taxidermist, was detailed during the latter half of August, 1929, to proceed to South Carolina to procure specimens and accessions for a biological group of white-tailed deer. After an absence of about two weeks, he returned with 13 specimens and other necessary material including photographs. Later in the year, when sent to Minneapolis to pack and ship a large collection of birds donated to the Museum, he was given an opportunity to visit museums in Milwaukee and Chicago for the purpose of studying modern technique in taxidermy.

ACCESSIONS FOR THE YEAR

While the aggregate number of specimens received does not approach that of the two preceding years, on the other hand, the sources whence the material has flowed into the Museum were much more numerous than hitherto. The scientific value of the accessions not only has maintained the high standards of former years, but because of the greater opportunities, through exchange or purchase to fill gaps in our series, there has resulted a marked improvement in the quality of many of the collections. The increasing tendency of taxonomists not officially members of the staff, to deposit type specimens of species described by them in the National Museum, has also manifested itself during the past year and has greatly contributed to increase the usefulness of the collections.

Some of the principal sources of material have already been mentioned in discussing the field work of the Museum staff. Gathered to a great extent by the men who are to use it in their scientific researches and who know intimately the needs and the gaps in the collections already at hand, this sort of material is of the utmost importance. Many friends of the Museum have also contributed invaluable material which the Museum could not have secured unaided, several important expeditions having thus favored us during the past year. The National Geographic Society with great liberality has presented the Museum with large collections, particularly of birds and plants, from Dr. Joseph F. Rock's explorations at high altitudes in the Provinces of Yunnan and Szechwan, western China, and also a large number of birds, insects and plants gathered by E. G. Holt along the boundary of Venezuela and Brazil. The Hon. Gifford Pinchot donated a most interesting and valuable zoological collection gathered on numerous rarely visited islands in the Caribbean Sea and the Pacific Ocean as far west as Tahiti during the cruise of his yacht, the *Mary Pinchot*. This collection, which contains many new species and additions to the series of the National Museum, owes its excellence largely to the zeal of Dr. A. K. Fisher, who accompanied the expedition under arrangement with the Bureau of Biological Survey. Dr. H. C. Kellers, United States Navy, who had been attached to the solar eclipse expedition to Panay, P. I., made a notable contribution to the national collections, especially reptiles, fishes, and mollusks.

Mammals.—The most noteworthy accession consisted of 186 mammals collected by Dr. D. C. Graham in Szechwan, among them three skins of *Ailuropus* (the "giant panda"), as well as a fine flying squirrel, both new to the collection. A genus of squirrel, also new to the collection, was contained among the mammals from the same Chinese province received from Doctor Rock. Still another flying squirrel hitherto unrepresented in the Museum was presented by Capt. L. L. Gardner. The Siamese mammals received from Dr. Hugh M. Smith make a noteworthy addition to those previously sent in by him. A collection of 41 small Siberian mammals, collected by W. W. Scalon and obtained through A. B. Howell, is of importance because from a region previously poorly represented here. Through exchange with the British Museum a South American species of bat new to the collection has been obtained.

Birds.—Bird skins received numbered 4,783 compared with 4,392 in the preceding year. Receipts in anatomical material consisted of 328 alcoholics and 826 skeletons and parts of skeletons. There were received during the year 210 eggs and 20 nests. In addition to these, the A. C. Bent collection of North American birds' eggs, a most

excellent and complete series, was deposited in the Museum. The most important and noteworthy accessions were as follows: Pinchot South Sea expedition, 453 bird skins, 1 alcoholic, 23 skeletons, 2 nests and 7 eggs collected in various islands of the Caribbean Sea and the South Pacific. This lot included 22 forms new to the Museum and one new to science, a humming bird *Anthracothorax violicauda pinchoti*. Dr. David C. Graham, of Suifu, China, sent several lots of specimens during the year, totaling 205 skins and 416 skeletons, from the Province of Szechwan, including those collected at Muping. These specimens supplement previous lots and include several forms new to the Museum. The Minneapolis Public Library presented 1,532 Philippine bird skins from the Menage collection, including the types or cotypes of over 30 species and subspecies. This formed not only the most important single accession of the year but one of the most notable in recent years. Besides the types, a good number of forms new to the Museum were included. Together with the Mearns and other Philippine collections, the present addition gives the National Museum one of the finest, if not the finest, collection of Philippine birds in the world. Dr. Hugh M. Smith continued work in Siam and sent in 431 skins, 8 skeletons, 1 nest and 10 eggs; the material came largely from localities not represented in his earlier shipments of previous years. From the National Geographic Society there were received two important lots of specimens collected by expeditions under its auspices. One lot, containing 708 bird skins, was collected by Dr. Joseph F. Rock in the country between Muli and Tatsienlu, along the Yalung River, and between the Mekong-Salween divide and the Yangtze-Mekong divide, all in Szechwan, China. Among the birds were another specimen of the rare wren *Spelaeornis rocki*, a new babbler, *Fulvetta insperata*, two new laughing thrushes, *Garrulax albogularis eous* and *Dryonastes berthemyi ricinus*, and a number of rare forms either new to the Museum or but poorly represented hitherto. Another lot containing 288 bird skins and 26 alcoholics, was obtained by E. G. Holt on the Venezuelan-Brazilian boundary, in a territory previously unexplored ornithologically. A number of birds new to the Museum are included. The Smithsonian-Parish expedition to Florida, Cuba, and Hispaniola obtained 399 skins, 60 alcoholics, 131 skeletons and 13 eggs. Other noteworthy accessions, though individually smaller, were a lot of 87 skins of South American birds, including one genus and 45 forms new to the Museum, received in exchange from the Carnegie Museum; 10 skins of South African birds, representing 10 genera new to the Museum, received in exchange from the Transvaal Museum; 59 bird skins, chiefly species new to the national collections, received in exchange from the Museum of Comparative

Zoölogy. By transfer from the Biological Survey the Museum received 16 skins, 26 alcoholics, 23 skeletons and 6 eggs; from Cornell University, by exchange, 9 skins including 4 types of Porto Rican birds, and 3 South African forms new to the collections. Forty-two skeletons of birds from Mount Cameroon, including two genera (*Nesocharis shellevi*, and *Poliolais lopezi alexanderi*) new to the Museum were purchased from the Rev. J. A. Reis, jr. A lark (*Chersophilus duponti margaritae*) of a genus new to the Museum was received in exchange from the Zoologische Museum der Universität, in Berlin; also a large number of less notable but valuable accessions. Under the Swales fund left by the late Bradshaw Hall Swales there were secured 34 skins, of forms new to the Museum.

Reptiles.—A large collection of reptiles and amphibians taken by Dr. H. C. Kellers on the island of Panay, P. I., where no extensive collecting had previously been done, including large series of the commoner forms, will be of great value for comparative study. Dr. W. D. Pierce has forwarded material from Occidental Negros and elsewhere in the Philippine group. A considerable collection of West Indian reptiles was secured by Doctor Bartsch, traveling under the Walter Rathbone Bacon fund, in many of the Lesser Antilles where little previous collecting had been done. The Pinchot South Seas expedition yielded much useful topotypic material from the Galapagos Islands. The Smithsonian-Parish expedition to Haiti has brought exceedingly interesting specimens from old and new localities. Accessions from the Museum of Comparative Zoölogy, from the National Geographic Society, from the Biological Survey and from such enthusiastic individual collectors as Dr. Hugh M. Smith, D. C. Graham, and the late C. R. Orcutt, have made the past year a very profitable one to the division as far as new material is concerned.

Fishes.—Among the most important collections received during the year is that made by Lieut. Dr. H. C. Kellers, United States Navy, during the eclipse expedition to Iloilo, P. I. This includes 5,059 specimens, mostly small fishes, comprising important additions to the Philippine material now being reported upon by Dr. H. W. Fowler. The collections made by the Pinchot South Seas expedition to the Galapagos and other islands of the Pacific contained many interesting forms, topotypic and otherwise, of the regions traversed. Dr. D. C. Graham forwarded a large number of interesting Chinese fishes from the vicinity of Suifu, Szechwan, China. The Smithsonian-Parish expedition to Haiti secured collections of some importance. The Kentucky Geological Survey forwarded a fine lot of fishes from the Mammoth Cave, Ky., and tributary streams. The Bureau of Fisheries transferred the whitefishes collected and

studied by Walter Koelz. Kenneth L. Hobbs, Linden, Md., presented three fishes, type and paratypes of *Centrolophus californicus*, collected by himself on the coast of California. Leonard P. Schultz, University of Washington, presented two paratypes of his new species of mud minnows, *Novumbra hubbsi*, from western Washington.

Insects.—The largest addition for the year comes from Dr. David C. Graham, of Suifu, Szechwan, China, whose total sendings amount to 58,139 specimens. A collection of 37,100 miscellaneous insects, including 477 types, was deposited by the Brooklyn Museum. L. L. Buchanan, of the Bureau of Entomology, presented his private collection of beetles, numbering about 5,000 specimens. This collection is well classified and represents years of careful study. The Victorias Milling Co. of Manila, P. I., has presented 4,537 miscellaneous insects collected by Dr. W. Dwight Pierce, a gathering of especial value, as many immature stages are included and many of the adult specimens are reared specimens. The Bureau of Science in the Philippines, following its long-established custom, has deposited during the present year 3,562 miscellaneous insects from the Philippine Islands. The collection of northern European diptera, mostly taken at Are, Sweden, by Dr. J. M. Aldrich, amounts to about 2,000 specimens. Dr. H. M. Smith, of Bangkok, Siam, contributed during the year 1,790 specimens of Siamese insects. Dr. A. C. Kinsey, of Bloomington, Ind., who has been for several years revising the gall-making wasps of the family Cynipidae, has deposited 1,221 specimens of this group. Dr. J. W. Campbell, of Kumara, New Zealand, has sent several valuable shipments of New Zealand insects, amounting to 1,422 specimens. Numerous insects were received from the Pinchot South Seas expedition; these were collected in a number of interesting localities. The National Geographic Society contributed 400 miscellaneous insects collected in South America. Dr. Unnio Saalas of Finland, as a result of an exchange with the Museum, furnished 331 specimens of beetle larvae, a collection of unique value on account of the difficulty of obtaining correctly-determined early stages in this large order. Dr. C. P. Alexander, who has made many donations in the past, contributed 400 specimens of Philippine flies, many of them being identified craneflies, in which family he is a recognized world authority. The Kentucky Geological Survey donated 325 miscellaneous insects, many having been obtained in the Mammoth Cave by Leonard Giovannoli. Mrs. Carlota R. Maulme, of Guayaquil, Ecuador, presented 300 butterflies from Ecuador, collected by A. Cartwright. The Bureau of Biological Survey in Washington transferred 97 slides of fleas, all identified by Dr. Karl Jordan, of Tring, England, the principal authority on this small but important group of insects.

Marine Invertebrates.—The following accessions are of particular interest and importance: Otto Degener of Kilauea, Hawaii, 10 lots, 2,794 specimens, mostly hermit crabs, from the Hawaiian Islands; Dr. M. W. de Laubenfels of Pasadena, Calif., 176 specimens (64 species) of sponges from California, including 52 types and 19 paratypes, collected in part by the donor; Pacific Biological Laboratories, Pacific Grove, Calif. (through E. F. Ricketts), 230 specimens of marine invertebrates, mostly crustacea from Monterey Bay; W. D. Pierce, Victorias Milling Co., Negros, P. I., 328 specimens of marine invertebrates from the Philippines; Horace G. Richards, University of Pennsylvania, 181 crustaceans collected off the coast of New Jersey; G. H. Wailes, Biological Board of Canada, Nanaimo, B. C., 172 specimens of crustaceans, mostly amphipods and schizopods, from Canada; Melbourne Ward, Sydney, Australia, 93 specimens of crustaceans from Australia. Several smaller accessions are worthy of special mention because they bring type specimens to the national collections, such as: E. P. Creaser, University of Michigan, 6 specimens of phyllopods, paratypes of *Eubranchipus oregonus* Creaser; British Museum (Natural History), London, 1 paratype of *Eumunida fumanbulis*; 2 specimens of *Potamon (Potamonautes) platynotus* Cunningham and 2 specimens of *Platythelphusa maculata* (Cunningham); Hopkins Marine Station, Pacific Grove, Calif., through Prof. G. E. MacGinitie, 4 specimens of annelid worms *Harmothoe adventor*, paratypes of a new species; Dr. Libbie H. Hyman, University of Chicago, male and female types of *Hydra americana* (mounted on slides) and 8 paratypes in alcohol collected by the donor in Jackson Park Lagoon, Chicago; Mr. A. P. Jacot, Tsinan, Shantung, China, 108 specimens of Foraminifera, including types, described from the coast of Shantung; Prof. James E. Lynch, University of California, 6 microscopic slides comprising the types and paratypes of 4 new species and a new genus of ciliate protozoa from the digestive tract of sea urchins; F. J. Myers, Ventnor, N. J., 113 microscopic slides of rotifers comprising additions and replacements made by the donor to the national collections. The United States Bureau of Fisheries transferred more than 5,000 specimens of copepods, including the type lots of 8 species. These copepods were determined by Dr. C. B. Wilson and are the specimens upon which his monographs of the copepods of Chesapeake Bay and New England are based.

Mollusks.—While the number of specimens listed falls short of that of the previous year, because of the immense series of Cuban mollusks then accessioned, nevertheless the collections received represent a very notable and valuable increment. The expedition conducted by the curator, Dr. Paul Bartsch, under the auspices of the

Walter Rathbone Bacon Traveling Scholarship for the study of the land-molluscan fauna of the West Indies, yielded the finest series of these animals ever brought together from the region in question, the specimens collected being estimated at 100,000. With part of the income derived from the Frances Lea Chamberlain fund, the molluscan collections, embracing approximately 4,500 lots, made by the late C. R. Orcutt in Jamaica and Haiti, were purchased. The duplicates of the Orcutt collection were also acquired, materially increasing the collection and bringing the total probably up to some 20,000 specimens. The collections made by Walter J. Eyerdam in 1927, some 4,000 specimens, were also purchased under the Chamberlain fund. The continued efforts of Dr. Hugh M. Smith in Siam have added materially to the collections, as have those of Dr. D. C. Graham in Szechwan, China. Dr. W. Dwight Pierce, in the island of Negros, P. I., and Dr. F. Felippone, of Montevideo, Uruguay, forwarded 284 specimens in return for identifications. Francis L. Link of the Willard Straight Agricultural School, Jolo, P. I., forwarded excellent collections from that general region. The solar eclipse expedition of the Navy Department, thanks to the zeal of Dr. H. C. Kellers, United States Navy, yielded no less than 3,000 specimens from Panay, P. I. Fine series of mollusks were also obtained from the Pinchot South Seas expedition and the Smithsonian-Parish expedition to Haiti. F. E. Dutcher made material contributions to the South African collections. A very welcome gift received from Otto Degener of Honolulu, Hawaii, included 852 specimens of Hawaiian shells, and another sent by Prof. Manuel Valerio, San Jose, Costa Rica, about 100 specimens.

Helminths.—The section, in spite of the small number of accessions (14), nevertheless received the largest number of specimens that has come to it in one single year. This is due to the large private collection of Dr. G. A. MacCallum, of Baltimore, Md., who donated his entire series of alcoholic specimens and prepared mounts to the National Museum for permanent custody. The collection embraces about 1,000 bottles of alcoholic specimens, containing from one to many individuals each, and about 3,000 microscopic mounts. Another important collection was one received from Prof. Edwin Linton, consisting of 110 microscopic mounts, representing 20 specimens of trematodes. Still another, received from Prof. H. W. Manter, included the types of two parasitic nematodes, *Citellina marmotae* and *Citellina monacis*, from the woodchuck of Maine. The type of the trematode *Pneumonoces parvipleurus* Riley was received from Prof. William A. Riley of the University of Minnesota.

Corals.—The section reports that among the 8 accessions received were 2 cotypes of *Notophyllia etheridgi* Hoffmeister, and 11 other

specimens of corals received from the Australian Museum as part return for Doctor Vaughan's and Doctor Hoffmeister's efforts in preparing a paper on the collection of corals in that museum. This is the most important accession during the year. Two lots, comprising 87 specimens collected by Dr. W. Dwight Pierce in the Philippines, also merit special attention, as does a collection of about 50 specimens made by Otto Degener in Hawaii.

Echinoderms.—The most important accession was received from Gordon E. Gates, and consisted of a small collection of sea-urchins and starfishes from Burma, including two recently described species new to our collection. Other important accessions were a collection of Hawaiian sea-urchins and starfishes received from Otto Degener, and a collection of tropical echinoderms received from the Hon. Gifford Pinchot.

Plants.—The more important accessions are as follows: 18,744 specimens from Peru and Brazil, collected by E. P. Killip and A. C. Smith, transferred by the Smithsonian Institution; about 7,500 specimens collected in Szechwan, Yunnan, and the Kingdom of Mili, China, by Dr. Joseph F. Rock, presented by the National Geographic Society; 4,693 specimens received as a transfer from the United States Department of Agriculture (of this number 3,007 are from the Forest Service, whose entire herbarium has been deposited in the National Museum during the fiscal year, and 1,602 are from the Bureau of Plant Industry); 1,429 Bolivian specimens collected by Dr. Otto Buchtien, transferred by the Smithsonian Institution; 1,227 specimens collected in Kwangsi, China, by R. C. Ching, Nanking, China, and received in exchange from the Metropolitan Museum of Natural History; 1,567 specimens from the Philippine Islands and the East Indies, received from the University of California, in exchange; 996 specimens from Tibet and southwestern China, collected by George Forrest, received from the Royal Botanic Garden, Edinburgh, Scotland, in exchange; 2,020 specimens, mainly from the United States and China, received from the Arnold Arboretum of Harvard University, in exchange; 833 specimens collected in southern Venezuela by E. G. Holt and W. Gehriger, presented by the National Geographic Society. There may be mentioned further: 727 specimens, mainly from tropical America, received from Naturhistoriska Riksmuseet, Stockholm, Sweden, in exchange; 596 specimens from Kansu, China, received from the Arnold Arboretum in exchange; 940 specimens of algae received from the University of California in exchange; 1,310 plants from Porto Rico, presented by J. A. Stevenson, of Washington, D. C.; 350 specimens collected in northeastern Peru by Guillermo Klug, transferred by the Smithsonian Institution; 605 specimens, chiefly from the United States, received from the

Field Museum of Natural History in exchange; 500 Paraguay specimens, collected by Pedro Jorgensen, Villarrica, Paraguay, purchase; 309 Argentine specimens, collected by Prof. S. Venturi, Tucuman, Argentina, purchase; 275 Samoan plants, received from the Botanische Museum, Berlin-Dahlem, Germany, in exchange; 102 specimens from Colombia and Mexico, received from the Jardin Botanique Principal, Leningrad, Union of Socialistic Soviet Republics, in exchange; 329 specimens from British Honduras, collected by C. L. Lundell, Dallas, Tex., purchase; 574 plants from Europe, presented by the Carnegie Institution of Washington; 365 specimens from Mexico and California, received from Stanford University in exchange; 517 specimens from Texas presented by the University of Texas; 414 specimens from Texas presented by Mrs. J. P. Stephenson, of Richardson, Tex.; 256 Peruvian plants given by Oscar Haught, of Littleton, W. Va.; 280 specimens from Siam presented by Dr. Hugh M. Smith, of Bangkok, Siam; 456 Peruvian specimens, mainly ferns, collected by Carlos Schunke, transferred by the Smithsonian Institution; 200 Cuban specimens collected by E. L. Ekman, received from Naturhistoriska Riksmuseet, Stockholm, in exchange; 180 Japanese plants received from the Taihoku Imperial University, Japan, in exchange; 200 specimens from Bulgaria received from the University of Sofia in exchange; 200 specimens from Rumania received from the University of Cluj, Rumania, in exchange; and 286 specimens from the western United States collected by Dr. and Mrs. E. B. Payson, purchase.

INSTALLATION AND PRESERVATION OF COLLECTIONS

Additions to the exhibition series include finely mounted specimens of a white-eared kob, a black-crowned duiker, and a black buck, which have been installed in the African Antelope exhibit. A lamb of the Rocky Mountain sheep was added to the large group in the American Mammal hall. One of the old mounted cassowaries was taken off exhibition and put in storage and its place taken by a freshly mounted bird. As a consequence of the repair and cleaning work in the rotunda, all the large game heads on the walls of the stairway leading to the second story had to be taken down, giving opportunity for a thorough overhauling and refinishing. A number of them have already been restored to their proper places. In addition, three mounted monkeys were repaired and returned to exhibition. During the year several of the mammal skeletons on exhibit which were found to be mounted in unnatural positions, notably some of the pinnipeds, were taken down and completely remounted by Mr. Scollick under the immediate direction of Mr. Miller, curator of mammals. A large cast of a young sperm whale which was finished

in the shop during the year is ready to be hung in the whale hall on the second floor. The individual animals of the group of white-tailed deer collected by W. L. Brown are nearly finished. An undertaking which taxed the resources and the skill of the taxidermists was skinning and preparing the hide of a large female hippopotamus which died in the National Zoological Park. The skin is now being tanned. The District of Columbia faunal exhibit has continued under the care of Doctor Bartsch, who has kept it current and made additions whenever possible. Seventeen birds were mounted and installed. The entire bird collection has been relabeled and also partly rearranged to accommodate the additions made.

Toward the end of the calendar year 1929, the west range in the basement was made available to the department of biology for the purpose of installing a synoptic exhibit of invertebrates, a collection that has been stored away on the second floor since the beginning of the war in 1917, when the space it had occupied was required for offices of outside agencies. The collection originally occupied the entire northwest and west ranges, more than twice as much room as now allotted to it, with arrangement by faunal areas, much like the vertebrate exhibition. With reduced space a new arrangement, based on a systematic display, has been planned, and the necessary cases and collections have been moved from the second story and tentatively put in place.

Fifteen quarter-unit cases were supplied the division of mammals during the fiscal year for the storing of skins, skulls, and skeleton material. Nine of these were added to the storage facilities for large skulls and skeletons. During the past year good progress has been made on the osteological collection in the attic in the nature of labeling, matching up material, and rearranging and spreading of certain groups. The entire available space is now occupied with cases, and the collection stored there is in a crowded condition. Additional space is necessary before it can be put in proper shape. However, this material is in better condition than heretofore. Four quarter-unit cases were added for the skin collection, which is in an overcrowded condition, although some of the groups have been given proper space, eliminating the crowding to some extent. Each year the skin collection is improved by rearranging and spreading of the material. Two cases were added to the collection of small skulls located in the office rooms. The small skulls and skeletons of cetaceans have all been placed in cases and are now in very good arrangement. Most of the larger whale skulls and skeletons also are properly arranged. Three heavy wooden tanks and two iron tanks were added to the facilities in the whale storage room for the preservation of alcoholic cetacean material.

Forty-five large and medium-sized skins were tanned on outside contract during the year. Several large skins and quite a number of small skins, including those used for exhibition, were tanned by the taxidermists. During the present fiscal year 1,433 small skins have been degreased by the use of petroleum ether. These skins for the most part were rodents, insectivores and bats; 84 medium-sized skins, mostly carnivores, were degreased by this same method. During the year some work has been done in the alcoholic collection, transferring specimens into proper containers, identification of material and general arrangement. During the year the taxidermists prepared as study specimens 58 small flat skins that were scraped or tanned, and 73 made-up skins. A considerable number of large and medium-sized skins, probably 150, need to be tanned and a comparatively small number of skins remain to be worked up. Work by the Museum force has resulted in cleaning approximately 100 large and medium skulls and 50 skeletons. Two porpoise skeletons were mounted during the year. Contract work on small and medium-sized skulls and skeletons resulted in the cleaning of 398 skulls and 173 skeletons. Between 200 and 300 small skulls and skeletons remain in the division uncleaned, besides large and medium-sized skulls and skeletons received during the past year. There is also a large accumulation of uncleaned medium-sized skeletons.

Of the bird skins received during the year, about half were distributed in the study series and labels were written for most of them. The remaining material was held for further study and labels supplied for some of it. Of collections previously held up as separate units awaiting identification and study, all the nonpasserine birds of the Frick collection (1,481 specimens) and 1,063 of the passerines of this collection and 888 passerines of the Roosevelt collection, making a total of 3,432 birds, have been identified, the names written on the labels and the birds distributed in the general study collection. Eight half-unit storage cases with 40 drawers and 8 quarter-unit storage cases with 60 drawers, were received during the year. Two of the latter cases were added to the series in the skeleton collection; the rest were added to the general bird collection. The Bent collection of North American birds' eggs was transferred to the Museum, arranged as a separate unit, and the task of cataloguing it begun. Mr. Riley spent considerable time expanding and rearranging crowded parts of the study series and in the course of this work removed the Tangaridae to a new location in the range and rearranged the family in six quarter-unit cases. He also rearranged the Campephagidae, Laniidae, Muscipidae, and a few related families in 12 quarter-unit cases, and the Icteridae in 12 quarter-unit cases. Besides the above, Mr. Riley identified skeletons and

birds received from Dr. D. C. Graham from Szechwan, and also the majority of birds received during the year from the National Zoological Park. The work of the preparators included skinning 145 birds, mounting 27 birds, and cleaning 12 skeletons (14 others were roughly cleaned by the taxidermists) and the preparation of a small number of eggs.

Miss Cochran, assistant curator of reptiles, has given permanent places in the storage room to 2,542 newly identified specimens. The laborer in the division of reptiles has washed and refilled every jar in the collection.

In the division of fishes the most important work bearing on the safety and accessibility of the collection consisted in a partial renovation of the storage. Movable platforms under the barrels and other large containers which facilitate their handling were constructed, in which connection the floor and lower parts of the walls were painted. The necessary routine work of cleaning and refilling jars has been carried out as usual.

In the division of insects in the north corridor of the west wing of the third floor miscellaneous material was removed and standard steel insect cases installed, thus making available working room for the section of Coleoptera. Working conditions as well as the physical condition of the collections have been very much improved.

Dr. J. M. Aldrich, associate curator of insects, devoted much time to curatorial work, rearranging the collection of Diptera in accordance with the literature constantly appearing. Charles T. Greene, assistant custodian of Diptera, has expanded the collection of Itonididae or Cecidomyiidae. In addition, a part of the families Stratiomyidae and Asilidae was rearranged. The amount of custodial work which it was possible to give to the Culicidae was very small, but during the past fiscal year efforts have been continued to remount and preserve permanently more of the numerous temporary slides of mosquito larvae and parts left in the collection by Doctor Dyar.

L. L. Buchanan, specialist for the Casey collection of Coleoptera, has made progress in the labeling and transfer of the Casey collection. At the present time all the types and all the more important parts of this collection are labeled and available for study; there remains to be handled a considerable amount of miscellaneous material. All the types, something over 9,000 in number, have been entered in the type catalogues. The greater part of the collection, consisting of about 90 families, is now completely labeled and systematically arranged in the steel cases provided for the purpose by Mrs. Casey.

Mr. Barber has made progress in rearranging the parts of the collection of Coleoptera now assigned to him and in straightening

out previously existing confusion. He worked for several weeks during August and September in the Brooklyn Museum assorting and preparing for shipment collections of Coleoptera and other insects which have been deposited in the National Museum, including a series of approximately 500 types of beetles as well as types of other orders. Mr. Buchanan, with the assistance of several preparators, has labeled and transferred to museum trays the Sherman collection of Dytiscidae and portions of the general collections. In addition, Mr. Buchanan visited Montclair, N. J., and secured for the Museum the collection of weevils accumulated by Alan Nicolay. Mrs. D. H. Blake, of the Bureau of Entomology, labeled and organized part of the beetle collection left by Mr. Knab. Doctor Chapin has been active in organizing and arranging the collections in his care and has made extended progress in this respect with the family Scarabaeidae, with some genera of the Coccinellidae and with other groups. Mr. Fisher has rearranged the North American specimens of Cerambycinae in the trays and has incorporated all of the material in this subfamily received. Dr. M. W. Blackman spent much time during the winter months in work on the family Ipidae or Scolytidae, in the course of which he rearranged and reorganized the collections extensively. In the coleopterous larvae, Dr. A. G. Böving has worked over previously unidentified material in the collections and placed it properly, has added a number of slides showing anatomical characters of beetle larvae, and has received and incorporated in the collections several important lots of specimens.

In the Lepidoptera, Dr. William Schaus, honorary assistant curator, has been specially active in curatorial work, as the chief burden of transferring, rearranging, and incorporating both the Brooklyn Museum collections and various miscellaneous collections formerly in storage has fallen on his shoulders. He has also worked on the rearrangement of the Geometridae, the Neotropical Epiinae, Zanolinas, and Lasocampidae and has arranged the Old World Hesperidae, the latter alone now occupying 100 museum drawers. In connection with this work Mr. Busck has transferred and incorporated all of the Palaearctic Microlepidoptera belonging to the Museum collections, has rearranged the American Tortricids and related families in new drawers in accordance with his revisional work on this family, and has incorporated in the collection a very important set of specimens of Indian Microlepidoptera sent to him by Dr. T. Bainbridge Fletcher. C. Heinrich has rearranged the Palaearctic Phycitinae and has incorporated in the general collection of this group the material belonging to the Hamfelt collection.

In the Chalcidoid Hymenoptera, Mr. Gahan has added to the collection a considerable amount of material accruing from identifi-

cation work and from exchange or gifts, this latter including some type material. All of the material of the genus *Trichogramma* has been brought together and worked over so that final arrangement will be possible later on. Mr. Cushman has effected the rearrangement of specimens of Ichneumonidae in groups in which he has carried out revisional work. Curatorial work on the aculeate Hymenoptera has been actively carried on. Miss Sandhouse has transferred a large amount of material in these groups from boxes or cork-lined trays into cardboard trays and standard museum drawers. Through the cooperation of Dr. J. Bequaert in studying and identifying Museum material it has been possible to transfer material of the genus *Vespula*, the North American *Polistes*, and the genus *Eumenes*. In addition, Chinese *Polistes* have been sorted and a portion of the material identified through assistance furnished by Father Octave Piel. The remaining Eumeninae, except the genus *Odynerus*, have been transferred to museum drawers. Much unidentified material of the genus *Ancistrocerus* has been sorted to subgenera and the North American species have been identified and arranged so far as possible. The Bembicinae published on by Dr. J. B. Parker have either been returned, in accordance with the terms of loans arranged by Mr. Rohwer, or have been incorporated in the collection, which has been rearranged in accordance with Professor Parker's study. Specimens of the sawfly genus *Dolerus* loaned to H. H. Ross, of the Illinois State Natural History Survey, have been returned and arranged in the collection. Most of the extensive series of specimens utilized by H. W. Allen and H. A. Jaynes in their studies on oriental *Tiphia*, published during the past fiscal year, were given proper type labels and incorporated in the collections, resulting in the addition of a very important series of specimens. All of the miscellaneous material of aculeate Hymenoptera that has come in has been distributed in the collection by Miss Sandhouse. These various activities have resulted in a considerable expansion of the collection during the past fiscal year.

In the Orthoptera, Mr. Caudell, custodian, has made further progress in arranging the Nearctic Acrididae, and has placed some African alcoholic material in the general collections.

Doctor Ewing has transferred to a new case and has rearranged, according to an up-to-date classification, the specimens of mites of the suborder Astigmata in the collections, and has supervised the extensive rearrangement and checking up of the large collection of slide-mounted insects under his care. He has also incorporated in the collections the set of specimens, including many cotypes and other valuable material, forwarded to Washington by Dr. J. W.

Folsom after the completion of his work on the Collembolan family Isotomidae.

In the Coccidae several large lots of material have been added to the collections through identification work, the largest coming from Java, Formosa, and Chosen. Other material includes European specimens acquired by purchase by the Bureau of Ethnology, embracing some topotype material of species described by Lindinger.

In the division of marine invertebrates the rearrangement of the study collections is about one-third completed. With the help of a temporary cataloguer for four months at the end of the fiscal year 3,452 numbers were entered, carded, and labeled. Specimens so dealt with include a great many miscellaneous small lots. Among the larger collections are the annelid collections made by the *Albatross* from 1891-1905 and reported on by Dr. R. V. Chamberlain in volume 48 of the *Memoirs of the Museum of Comparative Zoölogy*. During the year Frank J. Myers completed the rehabilitation of the collection of rotifers. Consisting almost wholly of microscopic slide mounts made by the older methods, nearly all required remounting, a most painstaking task of no mean proportions. This year Mr. Myers remounted approximately 400 slides of these microscopic organisms, most generously donating his time and all of the materials used in this exacting work. In addition, he presented to the national collections 113 hitherto unrepresented forms from his private collections. The Museum is very grateful for the invaluable service which Mr. Myers has rendered.

In the division of mollusks, the time of the curator, Dr. Paul Bartsch and of the assistant curator, Mr. W. B. Marshall, has been largely consumed in attending to the daily routine of identification of material sent in for determination and the answering inquiries. In addition the curator has arranged the unpacking and cataloguing of the collections made in the Lesser Antilles during the past summer. Mr. Marshall has devoted considerable time to the revising of the Lea collection of Naiades, in order to make this conform with recent changes in classification, and has also prepared a catalogue of the types in the Lea collection. The preparator's time has been almost completely devoted to the collections made by the late C. R. Orcutt in Jamaica and Haiti as well as other scattered material that has come in from time to time. It should here be mentioned that the efficient services of Miss Ava L. Bennett terminated with her sudden death in November and the division was decidedly handicapped for want of adequate clerical help until March 1, when Miss B. E. Shields was transferred to it. From February 24 to July 30 a temporary cataloguer labeled, entered in the catalogue, and numbered 7,177 lots of specimens.

The study collection of helminths has, as usual, been gone over to make sure specimens are provided with the necessary alcohol, and the MacCallum collection is being overhauled.

In the division of echinoderms, thanks to the employment of temporary cataloguers from March 4 to April 5 and from April 11 to June 10, it was possible to make a very considerable advance in bringing the collection up to date. Several thousand specimens were placed in new containers and either catalogued, or if already catalogued, the entries in the old catalogues were checked and amplified and the identifications inserted. A considerable amount of work was done in going over the collection as a whole, making minor improvements in the installation.

In the main herbarium there has been no general distribution of phanerogamic specimens into the herbarium during the past year, because of the fact that case room was not available for a much needed expansion of the entire herbarium and that the number of specimens ready for distribution was comparatively small. As a result of the reorganization of the staff in 1928, it has been possible to divide the curatorial work of the phanerogamic collections on a geographic basis. Thus, Mr. Killip has charge of the South American material; Mr. Leonard of that of the eastern United States and the West Indies; Mr. Morton, the western United States, Mexico and Central America; and Mr. Walker, the Old World. Doctor Maxon, assisted by Mr. Morton, has identified, distributed, and re-arranged a large quantity of ferns.

During the year 20,982 sheets have been stamped and recorded. There are about 17,000 sheets ready to be stamped and recorded, and until this has been done the specimens are unavailable for study.

The segregation of the type specimens of American phanerogams has been continued by Mr. Killip and Mr. Walker, 16,576 types of new species and varieties having now been distinctly labeled, specially catalogued and placed in separate covers. These together comprise the so-called type herbarium, kept apart as a separate unit; 1,304 specimens were added during the year. Mr. Leonard, assisted by Mr. Walker, distributed nearly 20,000 mosses and 1,000 myxomycetes in the cryptogamic herbarium during the year.

A total of 28,361 sheets has been mounted during the year. Of this number, 21,072 were mounted with adhesive tape (16,572 of these by contract) and 7,289 with glue reinforced by adhesive tape. There remain about 18,000 unmounted specimens, besides 2,100 that are glued but not yet reinforced, and 2,400, mainly from the Forest Service herbarium, that need to be repaired.

Alterations to the small room at the entrance to the library and on the balcony overhead have been made, so that there is now avail-

able much-needed space for the storage of paper, field equipment and the like.

Mr. Killip has been in charge of the rearrangement of the sectional library, and has been assisted from time to time by a trained librarian designated by the Librarian of the Smithsonian Institution. The library room serves also as a study for visiting botanists.

RESEARCH BY MEMBERS OF THE STAFF

Research by the curator of mammals, Gerrit S. Miller, jr., has been mostly in the nature of routine identification of material belonging to the Museum or sent in by outsiders. Research by the assistant curator, Remington Kellogg, was directed mainly toward the completion of a report on Mexican aphibians begun some years ago. Considerable time was spent on bibliographic work on mammals.

Herbert Friedmann, curator of birds, completed Part 1 of a report on the birds collected by the Frick expedition to Ethiopia and Kenya Colony, and has continued work on the second part of this report as well as on the Roosevelt African collections. From time to time as new forms were found, short papers containing their description were published. He also completed several papers on other topics, including additions to the known victims of the parasitic cowbirds, notes on caudal molts, and a life history sketch of the social weaver of South Africa. The associate curator, Charles W. Richmond, continued researches into the files and records of the division, mainly in connection with types and early historical specimens. He spent considerable time on the proof of the second part of Mathews' *Systema Avium Australasianarum* and of the new edition of the American Ornithologists' Union Check List of North American birds. He read the manuscript and galley proofs of Bulletin 153, the first part of the Frick report mentioned above; and the manuscript of the part of a volume in the same series written by Dr. A. Wetmore. He found the original field catalogue of C. Drexler and was thereby enabled to post up some of his records in the Museum catalogues. The assistant curator, J. H. Riley, worked chiefly on Chinese birds collected by Drs. D. C. Graham and J. F. Rock and made provisional identifications of Siamese birds sent in by Dr. H. M. Smith. He also read proof of the second part of Mathews' *Systema Avium Australasianarum* and of the American Ornithologists' Union Check List. He prepared a paper on the birds collected in Kansu and Inner Mongolia by F. R. Wulsin, and another on birds from the islands off the east coast of Borneo, and published three short papers describing new forms of birds. Doctor Wetmore completed a work on the birds of Hispaniola and finished a report on the ornithological results of the Pinchot South Sea expedition. He also

identified numbers of bird bones, both fossil and recent, and published descriptions of a number of new forms.

In the division of reptiles the curator, L. Stejneger, has continued work on the Chinese material which will form the basis of a herpetology of China with numerous illustrations and full descriptions and synonymy. The assistant curator, Miss Cochran, completed a list of the Siamese specimens sent by Dr. Hugh M. Smith. The herpetology of Hispaniola is almost completed and will be in the printer's hands in the near future.

Researches by members of the staff of the division of fishes have been pursued upon collections from the following localities; several lots of fishes from the Province of Szechwan, China; several lots from Haiti, Cuba, and other localities in the West Indies, Costa Rica, Mexico, Hawaii, and islands of the South Seas. Collections from the west coast of Florida and from the Mammoth Cave region of Kentucky were received and identified.

In the division of insects, research by the associate curator, J. M. Aldrich, has been principally in continuation of his work on the examination of American muscoid type material in European museums. He has completed a paper on the dipterous genus *Stylogaster* and has as usual spent a great deal of time identifying material for the Bureau of Entomology and economic workers in various parts of the world, including Java, Argentina, Ecuador, and Hawaii. He has given a considerable portion of his time to cataloguing current literature on Diptera.

In the section of Coleoptera, H. S. Barber has spent some time working on Dryopids of the genera *Stenelmis*, *Elmis*, and *Limnius*, and on the meloid genus *Pomphopoea*. He has also devoted attention to the species of the family Pythidae, has described a new species belonging to the Stylopidae, has spent some time in the study of neotropical Hispinae and has continued researches on *Trichobaris* and *Rhadine*. In connection with his work on coleopterous larvae, Dr. A. Böving has undertaken a study of the head setae of the Chrysomelidae and Rhynchophora, in order to determine their value as taxonomic characters; has continued investigation of the larvae of the Chrysomelid subfamilies Galerucinae and Halticinae; and has made a special study of a certain Chrysomelid larvae, resulting in the preparation of a paper on *Gerotoma trifurcata* and another on *Exosoma lusitanica*.

Dr. E. A. Chapin has completed short papers on the Scarabaeidae and Coccinellidae and has advanced other researches on these families so that early completion is to be expected. Much of his work on rearranging the Scarabaeids and Coccinellids has been of a critical type, but the results of most of this probably will not appear in final form for some years. Mr. Buchanan has been engaged on

a review of the weevil genus *Perigaster* and has made a study on the Otiorhynchid genus *Pachnaeus*. W. S. Fisher has completed a number of papers describing miscellaneous new species in the Cerambycidae and Buprestidae, but pressure of other work has prevented his taking up extensive monographic studies.

In the section of Lepidoptera, A. Busck is engaged on an extended revision of the North American species of the Tortricidae, and has undertaken a comparative study of the female genitalia of the Microlepidoptera. It is expected that this study will result in considerable revision of the classification of the families of that group. C. Heinrich has continued studies on North American Phycitinae, a large and important piece of work which will require some time for completion. He has also made special studies on several genera of Noctuidae, particularly the genus *Epizeuxis*. Dr. W. Schaus' chief research activities during the past fiscal year have been on the identification and report of the Lepidoptera for the Biological Survey of Porto Rico and the Virgin Islands.

In the section of Hymenoptera, A. B. Gahan has found it necessary to extend his work on *Trichogramma* because of the complexities of the problem and further investigations will apparently be necessary for completion of a paper on this genus. R. A. Cushman has studied and prepared revisionary papers on the Ichneumon genera *Odontomerus* and *Polycyrtus* and on the Braconid genus *Fornicia*. He has also undertaken a study of the Braconid genus *Chelonus* and has made considerable progress with this. In addition, he has prepared several papers describing various new species. Miss Grace Sandhouse has worked over the North American species of the bee genus *Anthophora* and has prepared a preliminary key to those available for study. She has also carried on similar work on the genus *Trypoxylon*. The pressure of other duties has prevented her from completing the studies on *Augochlora*, *Osmia*, and *Agapostemon* which she has had under way previously. For a period of two and a half months, C. E. Mickel of the University of Minnesota, temporarily under the Bureau of Entomology, was engaged in a study of the specimens of Mutillidae in the national collections. His efforts were devoted mainly to work on South American species of this family. Towards the end of the year the Bureau of Entomology employed W. V. Balduf of the University of Illinois to work up the material belonging to the genus *Eurytoma*.

In Orthoptera and Neuropteroids during the past fiscal year, A. N. Caudell's research has been largely directed to the cataloguing and working up of literature and specimens of the order Copeognatha, or Corrodentia. This work was necessary to meet demands for identification, chiefly from the Plant Quarantine and Control

Administration of the Department of Agriculture. Dr. H. E. Ewing has continued his studies on the feather mites of the family Analgesidae and has undertaken several separate studies on various genera of Mallophaga during the past fiscal year.

In the division of marine invertebrates Dr. Mary J. Rathbun, associate in zoology, aside from seeing through the press the third of her monographic treatises on American crabs, "The Cancroid Crabs of America of the families Euryalidae, Portunidae, Atelecyclidae, Cancridae and Xanthidae" has given much time to the determination of various sendings of recent and fossil decapod crustacea received in the past 12 months. The curator, Dr. Waldo L. Schmitt, has devoted some time to the preparation of a report embodying new records and species of crayfishes. Editorial duties have been particularly heavy, a number of large monographs dealing with diverse groups of invertebrates which required reading and revising having been received during the year. The assistant curator, Clarence R. Shoemaker, has continued contributions to knowledge of the amphipod fauna of North America. During the year he completed six manuscripts of which four as listed in the accompanying bibliography have appeared in print. The yet unpublished manuscripts comprise: Amphipoda taken in the Bay of Fundy, Minas Basin, and Shubenacadie River, Nova Scotia, by the Atlantic Biological Station of Canada, and A New Species of Amphipod Crustacean from California, and Notes on *Eurystheus tenuicornis* (Holmes). A paper entitled, "A New Species of Isopod from Potter Creek Cave, Calif.," prepared by J. O. Maloney, aid, was published by the University of California during the year. Studies that Mr. Maloney has initiated on other collections of isopods have been continued as time has permitted. He has completed for the Plant Quarantine and Control Administration, numerous determinations of species found on imported plant material. Part 8, the concluding portion of the Foraminifera of the Atlantic, by Dr. J. A. Cushman, honorary collaborator, has been completed and is now going through the press. Of the other collaborators in the division, Dr. Maynard M. Metcalf is continuing zoogeographic investigations based on host parasite relations. Dr. W. H. Longley has been studying evidence indicative of the probable trend of evolution as revealed by critical analyses of the data of taxonomy. Dr. R. S. Bassler, head curator of geology and curator of invertebrate palaeontology, has continued supervision of the bryozoan collections, and in collaboration with Dr. Ferdinand Canu of Versailles, France, has named all current accessions of these forms and has in progress reports upon several larger collections of previous years.

Dr. Paul Bartsch, curator of mollusks, has continued his researches on West Indian mollusks. He has likewise practically completed a

monograph on the West American Turritidae, and he expects by the close of the next year to finish a monograph on the Hawaiian marine shells begun by Dr. W. H. Dall. Researches of William B. Marshall, assistant curator, have been centered on the pearly fresh-water mollusks of South America.

During the year the curator of echinoderms, Austin H. Clark, completed and submitted for publication part 3 of Bulletin 82 and made considerable progress toward the completion of part 4. A report upon the crinoid collection made by Dr. Th. Mortensen in the Indian and Pacific Oceans was completed and is now in press.

Dr. Frederick V. Coville, curator of the division of plants, has continued his studies on the breeding and culture of blueberries (*Vaccinium*) and gooseberries (*Grossularia*). Dr. William R. Maxon, associate curator, has continued his research work on tropical American ferns, making special study of the large collections from Colombia obtained by recent expeditions of the Smithsonian Institution and the Jardin Botanique of Leningrad. Toward the close of the year Doctor Maxon went to Europe to continue examination of the rich collections of ferns at the British Museum (Natural History) and the Royal Botanic Gardens, Kew, in connection with the preparation of the fern volume of the Flora of Jamaica. Ellsworth P. Killip, associate curator, in collaboration with Albert C. Smith of the New York Botanical Garden, has carried on investigations of the plants used as fish poisons in South America, the work being based upon data obtained on their recent expedition to Peru and Brazil. One paper on the subject has been published and two others are in preparation. Mr. Killip also has been revising a monograph of the American species of Passifloraceae which is now nearly ready for publication. Mr. E. C. Leonard, assistant curator, has continued his studies of West Indian plants, particularly those from Haiti, and has been engaged in the preparation of monographic treatments of certain genera of Acanthaceae. Egbert H. Walker, aid, has begun researches on the flora of the Province of Kansu, China, based mainly upon the collections of R. C. Ching. He has been making, also, a preliminary study of the Chinese representatives of the family Myrsinaceae, and has made progress in the preparation of a bibliography of the botany of eastern Asia. C. V. Morton, aid, has continued his studies of tropical American genera of the Solanaceae and Malpighiaceae, and has undertaken a revision of the Gosneriaceae.

RESEARCH OF OUTSIDE INVESTIGATORS AIDED BY MUSEUM MATERIAL

The more important loans of specimens made to outside investigators from the division of mammals are as follows: To the Johns Hopkins Medical School for Doctors Hartman and Straus, 1 monkey

skeleton; for Dr. W. L. Straus, jr., 5 lemurs in alcohol and 14 insectivores; for A. B. Howell, 10 kangaroo rats and 1 *pedetes* for use in his study of the comparative anatomy of saltatorial mammals; also 1 chimpanzee skeleton, without skull, and 1 echidna skull; for Dr. G. B. Wislocki, 1 echidna in alcohol; for Dr. E. Huber, 2 *Cheirogaleus* and 1 *Tarsius* for study of the facial muscles; to the American Museum of Natural History, New York, 4 mammals for study by R. T. Hatt, and 50 marmosa skins with skulls and 33 alcoholics for study by G. H. H. Tate; to the British Museum (Natural History), London, England, 6 rodents for identification; to Field Museum of Natural History, Chicago, 1 skeleton of *Thylacinus* for study by C. S. Riggs, and 1 bat, in alcohol, for study by C. C. Sanborn; to Bureau of Animal Industry, United States Department of Agriculture, 3 rats and viscera of 1 *Capromys*; to Museum of Vertebrate Zoology, University of California, 6 skulls and 1 skin for study by E. R. Hall, and 2 fox skins with skulls for Dr. J. Grinnell; to department of paleontology, University of California, 9 shrew skulls; to Walker Museum of Paleontology, University of Chicago, 1 skull and 1 skelton of *Thryonomys* for comparison with a fossil of the same genus from Africa; to the University Museums, University of Michigan, 21 skins and skulls of Central American squirrels for study by W. P. Harris, jr.; to New York Aquarium, 5 skulls of *Arctocephalus* for study by C. H. Townsend. The collection has been frequently consulted during the year by members of the Johns Hopkins Medical School. Dr. O. P. Hay, of the Carnegie Institution of Washington, has used the mammal collection throughout the year in connection with his work on fossil mammals. B. C. Indrambarya, a student at Cornell University, spent four days in July familiarizing himself with Siamese mammals in the collection of the Museum. Prof. Chester Stock, California Institute of Technology, spent approximately three weeks in the division from November 20 to December 25 in connection with research work on Pleistocene cats, a comparison of Conkling Cave fossil mammals of New Mexico with Recent mammals, and a study of Recent rodents. Dr. E. Raymond Hall of the Museum of Vertebrate Zoology, spent about one month from the end of April to the end of May in making comparisons of various genera of mammals; W. H. Longley, Carnegie Institution of Washington, spent one week examining the collection of bats. Members of the Biological Survey staff have had access to the mammal collection throughout the year in connection with their work on North American mammals.

Among outside investigators who made use of the collections of birds and the section library, were the following: Dr. R. M. Strong, Chicago, examined literature for a week in connection with a bibliography he has in preparation; W. W. Bowen, Philadelphia, spent

a week studying African birds in connection with a report on the Prentiss Gray expedition of the Academy of Natural Sciences of Philadelphia; E. G. Holt spent some days going over and determining South American birds collected on the Venezuelan-Brazilian boundary; Bruce Horsfall, Washington, D. C., spent several days in making paintings of birds for the American Nature Magazine; R. T. Moore, Pasadena, Calif., was engaged for a few days in examining Ecuadorian humming birds; J. Grinnell, Berkeley, Calif., worked over a number of types and other historical specimens of Californian birds; J. Berlioz, of Paris, spent a day examining Chinese babblers, East Indian pittas, and neotropical humming birds; J. T. Zimmer, formerly of Chicago, examined South American birds for a few days in connection with a Peruvian report. H. E. Ewing, department of entomology, examined many birds for ectoparasites; C. F. Denley, Rockville, Md., examined pheasants on several occasions; E. F. Naulty, New York, examined some mounted humming birds; R. M. de Schauensee, Philadelphia, studied some Siamese birds; E. J. Court, Washington, D. C., examined various foreign eggs; Alfred Cookman, Pomona, Calif., spent a short time examining certain rare birds and eggs; A. B. Howell, Baltimore, Md., looked over some Panamaian birds; M. D. Hart, of Richmond, Va., studied gallinules; Stephen S. Gregory, jr., Winnetka, Ill., examined some North American birds and eggs; W. E. C. Todd, Pittsburgh, Pa., spent most of a day on various birds; George D. Wilder, Peking, China, examined Chinese birds; Stanley O. Jewett, Portland, Oreg., examined spotted owls, western sparrows, and other birds; H. S. Swarth, San Francisco, Calif., spent a week studying Galapagos birds. Others who examined material on shorter visits included Dr. Thomas Barbour, Cambridge, Mass., who examined certain rare specimens; C. E. Underdown, Philadelphia, who looked at a few specimens of interest to him; P. A. Taverner, Ottawa, who examined some Canadian birds; J. E. Law, Altadena, Calif., who examined various icterine birds in connection with his study of a new Arizona form; and Dr. Witmer Stone, Philadelphia, who examined a few birds. Many visitors called to ask questions and were given the information they desired. Members of the Biological Survey staff made use of the collections as usual. These included A. H. Howell, who studied birds from Florida and Georgia; H. C. Oberholser, who examined a variety of birds in connection with the identification of specimens sent for determination by the Cleveland Museum, and others; and C. Cottam, who examined specimens from Utah. E. A. Preble examined trumpeter swans; F. C. Lincoln studied specimens of tropic birds; and A. S. Hyde worked on bird skeletons. Ornithologists who benefited the Museum by the determination of material included Dr.

James P. Chapin, who rendered opinions on a few West African birds; W. W. Bowen, who named a few African nightjars, and A. Van Rossem who identified a *Myiarchus* from Salvador.

Loans of ornithological material amounted to 702 specimens in 52 lots. The more important loans are as follows: American Museum of Natural History, for James P. Chapin, 7 lots containing 18 birds; Museum of Comparative Zoölogy, for O. Bangs, J. L. Peters, L. Griscom and H. Friedmann, 9 lots containing 69 birds; Academy of Natural Sciences, Philadelphia, for W. Huber, J. Bond, W. W. Bowen and R. M. De Schauensee, 11 lots containing 174 birds; Field Museum of Natural History, for C. E. Hellmayr and H. B. Conover, 6 lots of 33 birds; Museum of Vertebrate Zoology, for Dr. Joseph Grinnell, 3 lots containing 351 birds; H. H. Bailey, Miami, Fla., 10 skins of *Cyanocitta*; Mrs. L. D. Miner, Washington, D. C., 21 birds; Rockville Garden Club, Washington, D. C., 12 birds; Natural History Museum, San Diego, Calif., 12 skins of *Gelochelidon*; Naturhistoriska Riksmuseum, Stockholm, Sweden, for Count Nils Gyldenstolpe, 1 lot of 12 ant birds; California Institute of Technology, for A. J. Van Rossem, 2 lots of 25 birds (*Myiarchus* and *Polioptila*); J. E. Law, Altadena, Calif., 1 lot of 9 skeletons; and Los Angeles Museum for Hildegarde Howard, 4 lots of 28 skeletons.

Drs. E. R. Dunn, C. E. Burt, A. I. Ortenburger, and Tracy I. Storer, have spent varying amounts of time in the study of the collections of the division of reptiles. Loans for the year total 654 specimens, as follows: Museum of Comparative Zoölogy, 5 reptiles; L. M. Klauber, San Diego, 53 snakes; C. E. Burt, New York, 494 lizards; University Museum of Zoology, Ann Arbor, 12 turtles; Field Museum of Natural History, 65 lizards; American Museum of Natural History, 8 lots of tadpoles; Prof. E. R. Dunn, Haverford, Pa., 5 caecilians; Society of Natural History, Cincinnati, 4 lizards; and Dr. Adolpho Lutz, Rio de Janeiro, 6 frogs.

Dr. Henry W. Fowler, Academy of Natural Sciences, Philadelphia, spent several weeks in the division of fishes during the present year in continuation of his work upon the fishes of the Philippine Islands and adjacent seas. Albert E. Parr, Peabody Museum, Yale University, visited the Museum for several days to examine the material of Pleuronectidae in connection with his studies on certain members of that group. John R. Greeley, Cornell University, examined certain species of Cyprinoids in connection with his investigation of the individual variations of certain species of the genus *Semotilus*. Hashime Murayama, National Geographic Society, examined several species of tropical aquarium fishes for the purpose of making colored plates of these interesting forms. Kenneth L. Hobbs, Linden, Md., was furnished laboratory facilities and assisted

in determining specimens obtained on the coast of California. Carl L. Hubbs, University of Michigan, examined the collections of Percidae in connection with his investigations on the geographical distribution of certain members of this group. A total number of 1,281 specimens was loaned to various institutions: To the American Museum of Natural History, 1 dental plate of a whale shark; to the Museum of Zoology, University of Michigan, 410 cyprinodont fishes from Mexico and Central America; to Henry W. Fowler, Academy of Natural Sciences, Philadelphia, 61 specimens of fishes from the Philippine Islands for study in connection with his investigation on Philippine fishes; to the Natural History Museum, Stanford University, 645 specimens of fishes from the fresh waters of Haiti and Jamaica, for G. B. Myers; to Mount Holyoke College, 3 specimens of fishes; to United States Bureau of Fisheries, 2 specimens of fishes, *Lutjanus campechianus* and *L. blackfordi*; to Albert E. Parr, Peabody Museum of Natural History, Yale University, 129 specimens of flatfishes (Pleuronectidae) for comparison with material at Yale University.

Material from the insect collections totaling 9,368 specimens has been loaned to 45 investigators and institutions for the benefit of their own studies or the mutual benefit of the Museum workers and the investigators. Among those to whom large consignments were sent may be mentioned: Academy of Natural Sciences, Philadelphia, 35 flies; C. P. Alexander, Amherst, Mass., 16 craneflies; Joseph Bequaert, Boston, Mass., 854 wasps; Th. Dobzhansky, Pasadena, Calif., 1,054 beetles; C. J. Drake, Ames, Iowa, 984 hemiptera; H. C. Fall, Tyngsboro, Mass., 35 beetles; T. H. Frison, Urbana, Ill., 540 beetles; Melville H. Hatch, Seattle, Wash., 525 beetles; W. Hopp, Berlin, Germany, 17 moths; W. Horn, Berlin, Germany, 12 beetles; H. B. Hungerford, Lawrence, Kans., 24 water bugs; Kansas University, 50 leaf hoppers; W. V. King, Mound, La., 22 mosquitoes; George M. List, Fort Collins, Colo., 116 beetles; C. E. Mickel, St. Paul, Minn., 533 wasps; T. B. Mitchell, Raleigh, N. C., 189 beetles; J. G. Needham, Ithaca, N. Y., 2,100 dragon flies; Ferd. Nevermann, San Jose, Costa Rica, 141 beetles; Fr. Ohaus, Mainz, Germany, 658 beetles; V. S. L. Pate, Ithaca, N. Y., 862 insects; H. J. Reinhard, College Station, Tex., 109 flies; R. J. Sim, Moorstown, N. J., 30 beetles; and J. Villeneuve, Rambouillet, France, 242 flies.

Numerous investigators who visited the division of insects during the year for the purpose of studying the collections or obtaining assistance from the various specialists at the Museum included L. H. Dunn and Herbert Clark, both of the Gorgas Memorial Laboratory, Panama; C. B. Philip and Theodore B. Hayne of the Rockefeller Foundation; Dr. C. P. Curry, Department of Health, Canal Zone;

G. C. Crampton, Massachusetts Agricultural College; J. M. Robinson, Alabama Agricultural College; H. J. Reinhard, Texas Agricultural Experiment Station, who spent three weeks in the Museum in study of dipterous genus *Winthemia*; Ray T. Webber, Bureau of Entomology, Melrose Highlands, Mass.; W. F. Sellers, of the same bureau, who spent three weeks studying the dipterous genus *Zenillia* in connection with rearings at the gypsy moth laboratory; C. H. Curran, American Museum of Natural History; Anthony Spuler, Washington Experiment Station; A. L. Melander, College of the City of New York, who spent a few days at the Museum identifying material collected in Florida; J. R. Malloch of the Biological Survey. Father Octave Piel of China spent some time in the section of hymenoptera, working on Chinese bees.

The division of marine invertebrates has continued its system of mutual assistance in research work with outside specialists. Shipments to these investigators embraced 554 lots of material aggregating 1,471 specimens. The assistance of the following specialists has been highly appreciated: Henry B. Bigelow (Medusae, Ctenophora); H. Boschma (Rhizocephalid Crustacea); A. Brender á Brandis (Rhizocephalid Crustacea); Oscar Carlgren (Sea anemones); R. P. Creaser (Phyllopod Crustacea); Wesley R. Coe (Nemertean); Joseph A. Cushman (Foraminifera); M. W. de Laubenfels (Porifera); G. S. Dodds (Fresh-water Entomostraca); Max Ellis (Discodrilids); Walter K. Fisher (Sipunculids); C. McLean Fraser (Hydroids); Gordon E. Gates (Earthworms); W. P. Hay (Crustacea); A. G. Huntsman (Ascidians); Libbie Hyman (Turbellaria); Chancey Juday (Cladocera); T. Kaburaki (Turbellaria); C. Dwight Marsh (Freshwater Copepods); Maynard M. Metcalf (*Salpa*, *Pyrosoma*, Protozoa); J. Percy Moore (Leeches); Frank J. Myers (Rotatoria); H. F. Nierstrasz (Parasitic Isopods); Yo Okada (Phyllopods); Raymond C. Osburn (Bryozoa); A. S. Pearse (Limnadia); Henry A. Pilsbry (Barnacles); F. A. Potts (Rhizocephalid Crustacea); Frank Smith (Earth-worms and Fresh-water Sponges); Caroline E. Stringer (Turbellaria); W. M. Tattersall (Crustacea); A. L. Treadwell (Annelids); Willis L. Tressler (Ostracods); C. B. Wilson (parasitic and free-swimming Copepods); and H. V. Wilson (Porifera). In addition the following nonresident investigators have been assisted with loans of material as follows: R. Lee Collins, Johns Hopkins University, 3 lots of bottom samples for studies on marine deposits; Edwin P. Creaser, Museum of Zoology, University of Michigan, 26 lots (243 specimens) of phyllopods for a revision of the American fresh-water crustacea; Joseph A. Cushman, 127 lots of bottom samples for examination for Foraminifera; Elizabeth Deichmann, Museum of Comparative Zoölogy, 27 specimens of

alcyonarians for use with a report on the Blake alcyonarians; Willard J. Fisher, Harvard College Observatory, 1 vial of red clay for use in lecture demonstration; Isabella Gordon, British Museum (Natural History), 2 crabs for studies on crustacea; D. Ilovaisky, Mining Academy, Moscow, 1 specimen of *Limulus*; G. E. MacGinitie, Hopkins Marine Station, 5 lots (10 specimens) of crabs; Albert Mann, Carnegie Institution, 17 bottles of plankton and 10 bottom samples in continuance of his studies on diatoms; Ann H. Morgan, Mount Holyoke College, 51 specimens of marine invertebrates for textbook illustrations; Phil Powers, Bar Harbor, Me., 69 lots (91 specimens) of annelid worms for survey of the marine annelids of the Mount Desert Island region; Francis P. Shepard, University of Illinois, 15 lots of bottom samples for a study on the origin and constitution of the fishing banks of the northeast coast of America; C. J. Shen, Memorial Institute of Biology, Peiping, China, 2 specimens of crabs for use in connection with a monograph on the crabs of China; Parker D. Trask, Princeton University, 425 vials of bottom samples for studies on the genesis of petroleum for the American Petroleum Institute; Willard G. Van Name, American Museum of Natural History, specimens of crustaceans for study.

Visiting specialists who have availed themselves of the collections in the division of marine invertebrates are as follows: Ernest Artschwager, United States Department of Agriculture, biological nomenclature; J. H. Ashworth, University of Edinburgh, annelid worms; William H. Bayliff, St. John's College, Annapolis, discodrilid worms; Ellinor Behre, Louisiana State University, marine biology; H. H. Bennett, Bureau of Chemistry, sponges; H. B. Bigelow, Museum of Comparative Zoölogy, oceanography; Paul H. Burkholter, Buffalo Museum of Science, oceanography; R. Lee Collins, Johns Hopkins University, bottom samples; J. A. Cushman, Sharon, Mass., Foraminifera; H. F. D. Davis, United States Navy, fouling of ships; Ira Edwards, Milwaukee Public Museum, marine invertebrates; Charles J. Fish, Buffalo Museum of Science, marine biology; Herbert V. Graham, Carnegie Institution of Washington, marine plankton; W. W. Hales, New York City, kelp and seaweed; Ruth D. Harman, Washington, D. C., biology, H. K. Helphenstine, jr., United States Department of Agriculture, biology; Boon C. Indrambarya, Bangkok, Siam, crustacea; H. C. Kellers, United States Navy, collecting invertebrates; E. A. Linden, Food and Drug Administration, crabs; Albert Mann, Carnegie Institution of Washington, bottom samples; C. D. Marsh, United States Department of Agriculture, crustacea, copepods; A. E. Parr, Peabody Museum, Yale University, marine invertebrates; Phil Powers, Rice Institute, Houston, Texas, marine annelids; Horace G. Richards, University

of Pennsylvania, crustacea; H. R. Seiwel, Buffalo Museum of Science, oceanography; Francis F. Shepard, University of Illinois, bottom deposits; E. A. Singer, New York City, illustrations of crustacea; Tracy Storer, University of California, crustacea; Ohte Suvatti, Ithaca, N. Y., fisheries investigations; Curt Teichert, University of Freiberg, Germany, Chesapeake Bay fauna; Parker D. Trask, Princeton University, bottom deposits; H. C. Truitt, University of Maryland, boring sponges; T. W. Vaughan, Scripps Institution, La Jolla, Calif., oceanography; R. A. Bartlett, New York City, collecting marine invertebrates; and R. E. Coker, University of North Carolina, fresh-water copepods.

In the division of mollusks, Miss Pearl Hicks, a student at George Washington University, continued dissections of a hybrid *Cerion* collected by Doctor Bartsch in Cuba. Miss Elizabeth Parker concluded studies of the Philippine *Neritidae*, her efforts being directed toward an analysis of the radula and opercula of species collected by Doctor Bartsch in the Philippines. Mrs. L. I. Sinitsin has been working for several months in the division, determining the fresh-water mollusks gathered with Doctor Sinitsin on a recent trip to the Western and Southern States. For the benefit of the investigators, specimens of mollusks were lent for study to Harry S. Ladd, University of Virginia, and to S. S. Berry, Redlands, Calif. Partly for the benefit of the Museum and partly for the Museum of Comparative Zoölogy, 296 lots of cephalopods collected in the Pacific Ocean on expeditions undertaken by Alexander Agassiz in the *Albatross*, were sent to Dr. Guy C. Robson at the British Museum (Natural History) for report. Dr. Horace B. Baker, of the University of Pennsylvania, was kind enough to identify 8 slugs sent to him. William J. Clench, of the Museum of Comparative Zoölogy, likewise assisted in determining 32 specimens of *Physas*. The collections have been regularly consulted by members of the Geological Survey staff who have had constant use of specimens for comparative purposes.

In the section of helminths, the researches of Dr. E. W. Price, Dr. Benjamin Schwarz, Dr. Eloise B. Cram, Miss Myrna F. Jones, Mr. J. E. Alicata, Dr. Rudolph Wetzel, Dr. D. T. Sinitsin, and Gerard Dikmans, all of the zoological Division of the Bureau of Animal Industry of the Department of Agriculture, have in part been based upon the collections of the National Museum, as will appear in detail in the bibliography.

In the section of corals, Doctor Hoffmeister spent some time last summer in the study of the collections. His efforts have resulted, among other things, in concluding the report on the Australian collection received long ago by Doctor Vaughan.

Material in the division of echinoderms was reported on by Prof. Walter K. Fisher, of Stanford University, who completed his work on the starfishes of the North Pacific and also during the year submitted a report on a small collection of starfishes from southern South America made by Dr. Waldo L. Schmitt when traveling under the auspices of the Walter Rathbone Bacon fund. Dr. Th. Mortensen, of the Zoological Museum, Copenhagen, Denmark, has continued his work on the sea urchins collected by the *Albatross* among the Philippines and in adjacent waters. Miss Elizabeth Deichmann has continued work upon the holothurians of the *Albatross* Philippine expedition.

As in former years, assistance has been rendered outside investigators by the loan of mounted specimens from the National Herbarium. Locally, 57 lots of material, aggregating 2,086 specimens, have been lent to members of the staff of the Bureau of Plant Industry. In addition, Dr. S. F. Blake, of the bureau, has examined a large number of specimens, chiefly of the family Compositae, at the herbarium.

Out-of-town botanists who have visited the herbarium during the past year, with mention of the subject of their studies, are as follows: C. E. Allen, University of Wisconsin (hepaticae); L. H. Bailey, Ithaca, N. Y., (flora of Venezuela); H. H. Bartlett, University of Michigan (flora of the Dutch East Indies); H. A. Gleason, New York Botanical Garden (tropical American plants); E. H. Graham, Carnegie Museum, Pittsburgh (vegetation of British Guiana); Oscar Haught, Littleton, W. Va. (plants of Northwestern Peru); Miss Caroline C. Haynes, Highlands, N. J. (hepaticae); M. A. Howe, New York Botanical Garden (algae); Duncan S. Johnson, Johns Hopkins University (vegetation of Jamaica); I. M. Johnston, Gray Herbarium (South American Boraginaceae); Prof. Marie-Victorin, Université de Montréal (the Genus *Elodea*); G. W. Martin, University of Iowa (Myxomycetes); T. M. Mauer, Tashkent, U. S. S. R. (Pteridophyta); E. D. Merrill, New York Botanical Garden (plants of China and the Philippine Islands); C. H. Ostenfeld, Universitets Botaniske Museum, Copenhagen (flora of Alaska and Arctic Canada); F. W. Pennell, Academy of Natural Sciences, Philadelphia (North American Scrophulariaceae); Joseph F. Rock, Likiang, China (flora of Yunnan); E. E. Sherff, Field Museum of Natural History (*Coreopsis* and related genera); J. K. Small, New York Botanical Garden (flora of southeastern United States); Albert C. Smith, New York Botanical Garden (tropical American Vacciniaceae and Pteridophyta); Charles Piper Smith, San José, Calif. (*Lupinus*); Lyman B. Smith, Gray Herbarium (Bromeliaceae); C. L. Stebbins, jr., Gray Herbarium (grasses); William Trelease, University of Illinois (Piperaceae); C. A. Weatherby, Gray Herbarium (Pteridophyta); Robert E.

Woodson, jr., Missouri Botanical Garden (Apocynaceae). The material loaned for study to institutions or to individuals outside of Washington during the past year consists of 96 lots aggregating 9,460 specimens, the most important loans being as follows: Botanisches Museum, Berlin-Dahlem, Germany, 150 specimens of *Selaginella*; British Museum (Natural History), 361 specimens; University of California, Los Angeles, 1,197 specimens of *Hyptis*; Field Museum of Natural History, 879 specimens; Gray Herbarium, Harvard University, 242 specimens; University of Illinois, 158 specimens; Missouri Botanical Garden, 1,106 specimens; New York Botanical Garden, 2,663 specimens; the Academy of Natural Sciences, Philadelphia, 551 specimens; Prof. Charles Piper Smith, San José, Calif., 549 specimens of *Lupinus*; Stanford University, 827 specimens; Naturhistoriska Riksmuseet, Stockholm, 276 specimens; Dr. William Trelease, Urbana, Ill., 214 specimens.

ASSISTANCE BY MEMBERS OF STAFF TO OTHER GOVERNMENT BUREAUS
AND PRIVATE INDIVIDUALS

The assistance ordinarily rendered to other Government bureaus by specialists of the Museum consists mostly in identification of specimens, unification of nomenclature and references to literature. Thus a large number of identifications are annually furnished to the Plant Quarantine and Control Administration, of specimens intercepted in shipment of plants; to the Bureau of the Biological Survey, in the determination of stomach contents of noxious or beneficial animals; to the Bureaus of Animal and of Plant Industry, in the determination of parasites or hosts and the proper nomenclature of animal or plant hosts; to the palaeontologists of the Geological Survey, in the comparison of fossils with their living relatives; to the National Zoological Park, in identification of specimens and verification of labels; to the Bureau of American Ethnology, in furnishing identification of bones and plants found during excavations and investigations.

At the request of the committee in charge of the United States Pharmacopoeial Convention held May 13-14, 1930, a special exhibit of 20 birds with labels naming their colors according to Ridgway's Color Standards was prepared, as part of the exhibitions relating to color standards and nomenclature.

Doctor Friedmann of the division of birds identified about 500 specimens of birds from Tanganyika, Africa, being the Loveridge collection of the Museum of Comparative Zoölogy.

The assistance rendered to individual investigators, amateurs, or purely curious persons who have seen or taken some, to them, unknown animal or plant, part of skeleton or bone, usually consists

in furnishing identification, in most cases accompanied by accounts of habits, distribution, and so forth; but not infrequently requests are received for bibliographic references or verifications, the assistance being always cheerfully given whenever information is available. In the division of mammals, 29 lots comprising about 85 specimens were submitted for report; in birds, 18 lots (including 93 skins, 701 eggs and a series of bones) were received and reported on; reptiles and amphibians in 30 lots were similarly disposed of; and in the division of fishes, 23 lots. In the division of insects the number of cases for examination and report received through the Museum amounted to 208. In the division of marine invertebrates the corresponding figure for the year was 138. The division of mollusks handled 91 separate lots of a similar nature representing 1,261 individual items. Seven lots of material were received for identification by the section of helminths. In the division of plants, 240 lots of material consisting of 11,352 specimens, have been received and reported on. A few other instances of assistance to outside institutions by members of the staff include frequent replies to telephone inquiries from newspapers carrying special columns of information in answer to queries. Members of the staff are also frequently called upon to examine and criticize manuscripts by outsiders. A further service is rendered by several of the curators who furnish abstracts for the publication, *Biological Abstracts*.

VISITS TO OTHER INSTITUTIONS OF PLACES ON OFFICIAL WORK

The assistant curator of mammals, Remington Kellogg, during April and May, in cooperation with the League of Nations and the Carnegie Institution of Washington, visited Europe partly to attend a meeting in Berlin of certain whaling experts and partly for the purpose of examining type specimens and other important material in the larger museums. He examined zoological collections at Berlin, Munich, Stuttgart, Vienna, Padua, Bologna, Florence, Turin, Paris, Amsterdam, Haarlem, and London, and made notes on many specimens.

Doctor Wetmore, Doctor Friedmann, and Mr. Riley attended the annual meeting of the American Ornithologists' Union at Philadelphia in October, 1929, and inspected parts of the collections of the Academy of Natural Sciences at that time. Doctor Wetmore also visited the Field Museum, the Museum of the University of Michigan, and the Buffalo Museum of Science. Doctor Friedmann visited the American Museum of Natural History, the Museum of Comparative Zoölogy, and Brown University, and lectured at Amherst College and at Cornell University. Mr. Riley visited Taunton, Mass., for the purpose of packing for shipment to the Museum the Bent collection of birds' eggs, and while on this detail also visited

the Museum of Comparative Zoölogy. Toward the end of the fiscal year Doctor Wetmore was in Europe where he attended the International Ornithological Congress in Amsterdam, and visited scientific institutions in Madrid, Paris, Brussels, Antwerp, Amsterdam, London, and Tring.

The associate curator of insects, J. M. Aldrich, returning from a collecting trip to Norway and Sweden, visited various European museums, particularly the British Museum, where he spent considerable time examining type specimens of American species. Incidentally he attended the meeting of the Entomological Club at Eastbourne, England, and a meeting of the Entomological Society of London, at each of which he showed interesting specimens of American insects and discussed them briefly. Mr. Buchanan, while on a trip to Montclair, N. J., to secure the Nicolay collection of weevils, spent one day in the American Museum of Natural History, New York, studying the collection of weevils.

The curator of marine invertebrates, Waldo L. Schmitt visited the Buffalo Museum of Science during the first week in June for the purpose of examining their collections, methods of preservation and routine care of incoming material. Arrangements were made for the future deposit in the National Museum of an extensive series of named plankton organisms from the New England coastal waters as soon as certain studies upon this material are completed and in print.

Austin H. Clark, curator of echinoderms, attended the meeting of the American Association for the Advancement of Science in Des Moines, Iowa, from December 27, 1929, to January 2, 1930, and incidentally visited the Field Museum of Natural History on two separate occasions.

Visits to other institutions by members of the staff of the division of plants include the month of June, 1930, spent by Doctor Maxon at the British Museum (Natural History) and the Royal Botanic Gardens, Kew; two short periods spent by Mr. Killip at the New York Botanical Garden and the Philadelphia Academy of Natural Sciences; and one period by Mr. Morton at the New York Botanical Garden.

Mr. W. L. Brown, the chief taxidermist, visited the museums in Milwaukee and Chicago for the purpose of studying methods of taxidermy employed there.

DISTRIBUTION AND EXCHANGE OF SPECIMENS

Duplicates distributed to high schools, colleges, and other similar institutions aggregated 5,253 specimens, of which 2,875 consisted of mollusks and fishes in 14 and 13 sets, respectively. A set of

plants, consisting of 1,135 specimens, was sent as a gift to the Panama Canal administration.

Exchanges to the number of 9,775 were sent out, of which 1,690 were zoological specimens. Of the 8,085 plants thus distributed, only one exchange exceeded 1,000 specimens, namely, that with the Field Museum of Natural History, Chicago, which aggregated 3,638 specimens.

NUMBER OF SPECIMENS UNDER THE DEPARTMENT OF BIOLOGY

The number of specimens under the department, as far as has been ascertained by count and estimate, now exceeds 9,000,000. The total number is probably much greater, since several collections, as the corals, have not been included in the estimate, nor does the number of plants given below include unmounted material of the lower cryptogams.

Estimated number of specimens

Division :	
Mammals	217, 748
Birds—	
Skins	242, 682
Alcoholics	8, 574
Skeletons	11, 845
Eggs	83, 048
	<hr/>
Reptiles and amphibians	346, 149
Fishes	91, 817
Insects	720, 024
Marine invertebrates	3, 450, 795
Mollusks	819, 518
Helminths	2, 068, 008
Echinoderms	37, 892
Plants	156, 822
	<hr/>
Total	1, 427, 300
	<hr/>
	9, 336, 073

REPORT ON THE DEPARTMENT OF GEOLOGY

By R. S. BASSLER, *Head Curator*

INTRODUCTION

The department of geology experienced the greatest loss in its history in the sudden death of Dr. George P. Merrill early in the present fiscal year. Connected with the Museum for nearly half a century and head curator of the department since its organization in 1897, Doctor Merrill is justly considered the creator and builder of the department. Possessed of the scientific knowledge, social qualifications, and executive ability necessary to organize and carry on the activities of a great department, and an artist in methods of display, Doctor Merrill was preeminently a museum man. It will be the endeavor of his successor to emulate his achievements and carry out, so far as possible, his plans for the future development of the department.

Changes incidental to the passing of the late head curator have interfered to some extent with the planned activities, but reports from the various divisions show progress in all branches of the work. An extensive revision of the mineral and ore exhibits is in process, but in the paleontological divisions efforts have been confined mainly to the study collections and laboratories.

Upon the appointment of Dr. W. F. Foshag as curator of mineralogy and petrology, the division of systematic and applied geology was placed under his supervision, with Mr. Edward P. Henderson, newly appointed assistant curator, in immediate charge of the economic collections. With the appointment of the latter, progressive work on these collections, which had been practically suspended for some months, was resumed.

Field investigations have exceeded similar operations in any single year in the history of the department, extending into various parts of the United States and abroad.

ACCESSIONS OF THE YEAR

As may be noted by the tabulation below, the accessions for the year number 209 with a total of 36,937 specimens, showing a decided increase over last year's acquisitions.

Division	Accessions	Specimens
Mineralogy and petrology-----	81	6, 507
Geology, systematic and applied-----	28	608
Stratigraphic paleontology-----	72	29, 572
Vertebrate paleontology-----	28	250
	209	36, 937

From the many valuable additions, the following are selected as being of particular interest.

A flawless crystal ball, $12\frac{7}{8}$ inches in diameter, weighing $106\frac{3}{4}$ pounds, and believed to be the largest perfect crystal sphere in existence, has occupied a prominent place in our exhibits for the past five years. Recorded previously as a deposit, this has now become the permanent property of the Museum, presented as a memorial to her husband by Mrs. Worcester Reed Warner, of Tarrytown, N. Y. It is the most valuable single specimen that has ever come to the division of mineralogy. Centrally located in the exhibition hall, it is an object greatly admired and of unflinching interest.

The Shepard collection of minerals finally became the property of the Museum within the present year, after being in its custody for 30 years. Received as a loan in 1899, it continued in that status until the death of Dr. Charles U. Shepard, jr., in 1916, since which time it has remained as a deposit according to the terms of his will. These conditions having now been complied with, the collection has been turned over unconditionally to the Museum. Assembled by Prof. Charles U. Shepard, one of the earliest of American mineralogists, this collection has great historical interest. Many of the minerals originally described by Professor Shepard are represented by the specimens on which his descriptions were based, and numerous fine crystal forms are included, in all comprising more than 5,000 specimens.

Miscellaneous minerals from California, Nevada, and Oregon were collected by Dr. W. F. Foshag in cooperation with the Roebing Fund. Exceptionally fine, large specimens of meyerhofferite, colemanite, and other borates; a series of rare phosphates from Pala, Calif.; and a number of other uncommon minerals, comprising excellent exhibition, study, and exchange materials, are included in this collection.

Through the Roebing Fund 26 accessions are recorded, all of material exceptionally fine or new to the collection. Twenty-three species not previously represented have been added. Of exhibition value is a topaz crystal showing unusual etching and weighing over 7 pounds, from the vicinity of Mogok, Upper Burma. More striking is a large mass made up of white quartz matrix in which are im-



THE LARGEST KNOWN PERFECT CRYSTAL BALL

FOR DESCRIPTION SEE PAGES 8 AND 92.



bedded pink and green tourmaline crystals, collected in the vicinity of Newry, Me. Fine tourmaline crystals from Brazil, a cut yellow sapphire of superior color, weighing 25.8 carats, and many other exceptional specimens are credited to this fund.

One blue and one canary stone were added to the series of colored diamonds in the Isaac Lea collection. This series attracts much attention and it is hoped in time to have representatives of all colors in which this gem is known. A Brazilian emerald weighing 10.3 carats, and carvings of jade, tourmaline, coral, amber, carnelian, and lapis-lazuli complete the acquisitions through the Frances Lea Chamberlain fund.

Of accessions to the collections in systematic and applied geology, the following may be mentioned:

Transfers from the United States Geological Survey consist of several sets of type specimens illustrating the geology of the following districts which have been studied or are in process of study by members of its staff; Greater Helena mining region, Montana; Stockton-Fairfield quadrangle, Utah; potash fields of New Mexico-Texas; and northern Mississippi bauxite deposits.

Six large samples of typical ore, presented by the Anaconda Copper Mining Co., Butte, Mont., two slabs of silver ore, gift of Tonopah Extension Mines (Inc.), and an unusual stalactitic limonite coated with the copper carbonate, malachite, donated by William P. Crawford, Bisbee, Ariz., provide additions to the exhibits. Lead-zinc and antimony ores from Brazil, gift of Servico Geologico e Mineralogico do Brazil, have been incorporated in the study series. A quantity of a newly described clay mineral, dickite, obtained from the Cusi Mexicana Mining Co., is useful for study and exchange.

A slab of Deer Isle, Maine, granite, 2 feet 8 inches square, received from the John L. Goss Corporation, Stonington, Me., has been utilized as the top of a pedestal. Various grades of a travertine from Florida, gift of the Johns-Manville Corporation, New York, are of interest in their close resemblance to the popular Italian travertine. A square slab of onyx from California was presented by the Southwest Onyx and Marble Co., San Diego, Calif.

A slice from the Gladstone, Australia, meteoric iron, obtained by exchange with Ward's Natural Science Establishment, is the only notable addition to the meteorite collection.

Type specimens constitute a major portion of the notable accessions in the division of stratigraphic paleontology, consisting of recently described material as well as older collections which, although housed in the Museum, had never been officially transferred. The latter are chiefly fossil plants from Cretaceous and Tertiary horizons which had been described by Prof. E. W. Berry in various

Professional Papers of the United States Geological Survey. These have now been formally transferred and are recorded under two accessions.

Fossil plants from the Grand Canyon, Ariz., collected and described by Dr. David White, were presented by the Carnegie Institution of Washington, under whose auspices the collection was made.

Types added to the collection of invertebrate fossils and transferred by the United States Geological Survey, comprise Devonian forms described by Frank McKim Swartz, and representatives of the genus *Barroisiceras* described by Dr. John B. Reeside, jr.

The Arkansas Geological Survey presented the originals of 26 species of Upper Cretaceous ostracods from Arkansas; a small collection of Cretaceous invertebrates from the Aspen shale, near Kemmerer, Wyo., gift of A. Allen Weymouth, has been described by Dr. John B. Reeside, jr., in collaboration with the donor; four types of cephalopods and one crinoid from the Richmond group of Ohio were donated by Prof. W. H. Shideler, Miami University, Oxford, Ohio; Canadian fossils described by Prof. H. F. Cleland were received as an exchange from Williams College; types of an interesting brachiopod from the Oligocene of Mexico were presented by W. S. Cole of Cornell University; and types of ostracods and Foraminifera were received as a gift from Robert Roth, Bartlesville, Okla.

Approaching the original types closely in scientific value are casts and gutta percha impressions of the cystids described by the eminent paleontologist Barrande in his Silurian System, the originals of which are preserved in the museum at Prague. Carrying out an expressed desire of Dr. Frank Springer, the making of these casts was undertaken by Doctor Bassler who visited Prague in the summer of 1929 for that purpose. The casts, which amply represent the type specimens, have been incorporated in the Springer collection and are suitably credited to the Springer Fund. Six rare crinoids and one starfish, purchased in Europe, are included under the same accession.

The most important addition to the Cambrian series is recorded as a deposit from the Smithsonian Institution, under whose auspices a collection consisting of several hundred good fossils from English localities and strata was made by B. B. Bancroft of Gloucestershire, England. This grant by the Institution served two useful purposes—Mr. Bancroft was enabled to conduct investigations otherwise impossible, and the National Museum secured material which probably could have been acquired in no other way, since none but an Englishman could obtain permission to collect at many of the localities.

Doctor Resser's field work resulted in the addition of more than 1,200 specimens of Cambrian forms, secured mostly in Montana.

Exchanges with the Milwaukee Public Museum provided for further enlargement of the Cambrian and Ozarkian collections from the upper Mississippi Valley. Many of these specimens, now under study by Doctors Ulrich and Resser, will become types. Other exchanges, arranged for by Doctor Bassler when in Europe last summer, have culminated in the receipt of Mesozoic and Cenozoic fossils from France, received from Museum National d'Histoire Naturelle in Paris, and a slab with Mesozoic crinoids—an excellent exhibition specimen—from Geologisch-Palaeontologischen Institutes der Universitat, Halle, Germany.

Gifts added much needed study material, notable among which the following may be mentioned: A second consignment of the private collection of Dr. A. F. Foerste, accompanied by his paleontological pamphlets; a collection made by Dr. E. O. Ulrich from the Ozarkian and Canadian rocks of Quebec; several thousand specimens of Tertiary shells from Ezanville, France, presented by Dr. Ferdinand Canu; approximately 1,500 Cretaceous bryozoans from Rugen, Germany, gift of Bayerischen Staatssammlung für Paleontologie und Historische Geologie, Munich; 250 Jurassic fossils from Alberta, Canada, presented by P. D. Moore of Okotoks; 2,500 Ordovician bryozoans from Oklahoma, donated by Prof. C. E. Decker of Norman; and 200 specimens of the primitive fishlike teeth, conodonts, from the Pennsylvanian of Illinois, received from Dr. J. Brookes Knight.

An exhibition specimen representing the sand-filled burrows of a worm, from near Mount Union, Pa., was donated by Hon. J. Banks Kurtz. This is one of the best examples of this type that has come under our notice.

Dr. Mary J. Rathbun's well known work on crustaceans was responsible for seven accessions of fossil crab material, all presented through her efforts.

The fossil mammal collection acquired outstanding material in the purchase of a series of eight articulated skeletons of the fossil horse *Mesohippus bairdi* from the Oligocene of Nebraska. Six of the skeletons are complete enough to mount, and it is planned to prepare a group exhibit of the entire lot which, it is thought, will be the most comprehensive display of this particular animal ever attempted. Additional excellently preserved horse material resulted from the field work of Dr. J. W. Gidley and party in the Snake River Valley, Idaho. In the vicinity of Hagerman several nearly complete skulls, lower jaws, and many of the skeletal bones,

apparently of a single new species, were recovered. At American Falls and other localities in the vicinity, material was collected from the Pleistocene gravels. A third addition to the mammal collection is a small skeleton from the Florissant shales near Colorado Springs, Colo., acquired by purchase. This is especially interesting in the probability that it will furnish valuable evidence on the correlation of the Florissant, a horizon which previously has yielded fossil remains of plants and insects only.

The material resulting from field operations under the direction of Mr. C. W. Gilmore, in the San Juan Basin, N. Mex., constitutes the most important contribution to the fossil reptilian collection. An articulated tail of a large hadrosaurian dinosaur; portions of the skull of a horned dinosaur, new to the fauna and possibly a new species; no less than 20 turtles, most of them complete shells of large size and representing six genera, are some of the specimens worthy of mention. Although few of these excepting the turtles are suitable for exhibition, the collection as a whole is of scientific interest and will contribute greatly to our knowledge of the faunas of this area.

Another noteworthy accession is a small collection of zeuglodont remains obtained by Remington Kellogg and N. H. Boss in Alabama and Mississippi, under the auspices of the Carnegie Institution of Washington. The outstanding specimen of this collection is a nearly complete skull, lower jaws, and part of the skeleton of a small zeuglodont. Our steadily growing collection of cetacean remains also was increased by a nearly complete skull, lower jaws, vertebrae, and limb bones of a large whalebone whale collected by Doctor Kellogg with assistance from members of the Maryland State Geological Survey at Governor's Run, Md., and the back portion of a skull of *Schizodelphis* presented by William Jones of Baltimore.

Two fossil amphibians imbedded in matrix, from the Permian of Germany, acquired by purchase, add to the collection one genus (*Pelosaurus*) not previously represented, and a specimen of *Branchiosaurus*, unique in that the entire outline of the body is shown.

A nearly complete carapace of the fossil turtle *Amyda virginiana*, deposited by the Maryland Geological Survey, is the best preserved specimen of this species yet discovered.

INSTALLATION AND PRESERVATION OF COLLECTIONS

A beginning has been made on a proposed rearrangement of the exhibits in mineralogy and applied geology, for the incorporation of new material and a general cleaning and revision. One large upright case, reinstalled with showy specimens of the calcium min-

erals, presents a greatly improved appearance, and a large tourmaline group recently purchased for the Roebling collection has been temporarily placed on a pedestal until a more suitable mount can be procured. The cases of copper, antimony, and rare metals have been revised, many new specimens introduced, and a better method of arrangement adopted. A series illustrating potash ores from New Mexico-Texas fields has been enlarged to twice its original size, now occupying two table cases.

The only striking addition to the paleontological exhibits is a slab, 30 by 40 inches, from the Triassic of Germany, in which are numerous beautifully preserved calyces, columns, and bases of the crinoid *Encrinurus carnalli*.

In the offices, as a matter of routine all current accessions have been cared for, properly recorded, and filed away. Due to changes in the department, the cataloguing of the Canfield collection has been considerably delayed, although some progress was made.

Approximately 75 boxes of materials stored in the basement for several years were opened, the contents examined, specimens suitable to our needs selected, and the remainder discarded. Likewise in the attic a quantity of stored material was disposed of, either by discarding useless specimens, or by distribution in the collections. In this way the weight in the attic was reduced by several tons.

Changes in organization interfered to some extent with consistent advance in the care of the paleontological collections. For a period of two months the division of stratigraphic paleontology was without a head, the work being directed by the head curator, whose duties elsewhere interfered with any marked activities in its furtherance. A long period of illness followed Doctor Resser's appointment to the curatorship, thus further delaying progress. Notwithstanding these handicaps, considerable improvement in the condition of the collections can be noted. This is especially marked in the study collections of fossil plants. In order to familiarize himself with the collections before undertaking extensive research, Dr. R. W. Brown, newly appointed paleobotanist on the United States Geological Survey, volunteered to superintend a general rearrangement—particularly of the type collections of the section. This has resulted in the segregation, grouping, general cleaning, and checking of all the Mesozoic and Cenozoic types. Incidentally, several lots of these described by Dr. E. W. Berry were brought to light, transferred by the Survey, accessioned, and catalogued. This part of the fossil-plant collection is now certainly in better condition than ever before in the history of the division.

Incidental to the selection of a number of Paleozoic plants for exchange purposes, these collections were cleaned, reduced, and rearranged.

The checking of the types of the Springer collection of crinoids was completed, and the collection, as a whole, now appears clean, compact, and well labeled. The condensation, arrangement, and labeling of the Williams collection of Devonian fossils also progressed.

Considerable time has been given to the arrangement of books and pamphlets comprising the sectional library dealing with paleontology and stratigraphy. Similarly in the geological department, time and effort have been expended in building up a more complete geological library than it was possible to care for until changes in arrangement made space for additional book cases. It is now planned to make this library a memorial to Dr. George P. Merrill, whose many books, accumulated during his long years of service in the department, have come to us, in part by the terms of his will and in part by agreement of his heirs.

Laboratory work in the division of vertebrate paleontology was about equally divided between the *Diplodocus* mount and the preparation of newly acquired specimens. Progress on the former was suspended for a period of three months while awaiting necessary steel castings, but the resumption of work late in April permits of an estimate that the mount is now about three-fourths completed.

Mr. Gilmore's summary of the amount of preparatory work on the collections of 1928 and 1929 already completed shows excellent progress, particularly in view of his small force of skilled workmen, the often delicate and arduous nature of their work, and the many other calls upon their time. The moving of many of the steel cases and their contents to permit of the erection of a balcony in the storage room, occupied the force for some time. At the close of the year, the ironwork for the balcony is practically completed.

INVESTIGATION AND RESEARCH

(a) *By members of the staff.*—Dr. R. S. Bassler, in collaboration with Dr. E. O. Ulrich, completed and submitted for publication a monograph on Cambrian ostracod-like crustaceans of the order Conchostraca; has made considerable progress on a synonymic catalogue of Paleozoic Ostracoda, undertaken because of the demand by paleontologists for such a work; and his studies with Ferdinand Canu have resulted in the completion of a work on Recent Bryozoa of Tunis, and the continuation of studies on the Cretaceous and Tertiary Bryozoa of North America and Australia, respectively. A manuscript for a volume on the Paleozoic rocks and faunas of Tennessee, upon which Doctor Bassler has been engaged for some time, was brought to a conclusion and sent to the State geologist of Tennessee for publication.

Dr. C. E. Resser has spent most of his time on a study of the Man-churian collections brought to the Museum by Dr. R. Endo. More than 175 new species occur in these Cambrian-Ozarkian collections, the study of which is a joint work in which it was found necessary to identify and describe over 200 species. It is hoped to complete these studies by the end of the calendar year.

Dr. E. O. Ulrich, associate in paleontology, has spent the greater part of the year on his monograph of Ozarkian and Canadian cephalopods. His joint work with Doctor Bassler on Cambrian crustaceans is noted above.

As time has permitted, Dr. W. F. Foshag has continued research on the mineralogy and origin of the borax deposits. In addition, a chemical investigation of arsenioferrite has been completed and the results submitted for publication.

E. P. Henderson has been engaged in a mineralogical study of some altered products of uranium minerals, which is not yet completed. He has, in addition, made several analyses of minerals and rocks for future use.

C. W. Gilmore completed a short paper on the osteology of the Pleistocene turtle *Trachemys sculpta*; prepared a brief description of a new extinct lizard from the Belly River formation of Canada for the Geological Survey of Canada; described two new species of dinosaurian reptiles from the Two Medicine formation of Montana; finished his extensive study of the fossil turtles of Mongolia, undertaken at the request of the American Museum of Natural History; and began a description of the *Diplodocus* skeleton now in process of mounting.

Dr. J. W. Gidley's study of the Pleistocene mammals of the Cumberland cave deposit has progressed, although delayed to some extent by his field work. He has prepared a description of a new species of fossil horse which he has named *Plesippus bannockensis*, based on material obtained last fall from near Hagerman, Idaho.

(b) *Research of outside investigators aided by Museum material, including work in the Museum or material loaned.*—Extended research work on the collections by outsiders has been confined largely to the division of stratigraphic paleontology. More than the usual number of investigators have engaged in studies for periods of from nine months to a year. Dr. R. Endo, whose work was noted in last year's report, has continued his comparative study on the Cambrian collections; Dr. Courtney Werner of Washington University, St. Louis, was engaged in research on the Museum's ample Devonian coral fauna from Ohio and Kentucky; Dr. Ira Edwards, Milwaukee Public Museum, devoted several months to studying Cambrian fossils of the Mississippi Valley; and Dr. Curt Teichert, who holds a fel-

lowship in geology from the Rockefeller Foundation, spent the greater part of the year in an investigation of American Ordovician and Silurian fossils.

Facilities for research, including desk room and the use of the collections, were granted to various students for shorter periods. Dr. Rudolf Ruedemann, State paleontologist of New York, and Dr. Josiah Bridge engaged in joint studies with Dr. E. O. Ulrich. Dr. G. A. Cooper of Yale University made a comparative study of our Lower Paleozoic brachiopods to further a generic work in which he is collaborating with Prof. Charles Schuchert, and Mr. J. E. Hutchinson, also of Yale, studied some unusual forms of Cambrian fossils. Dr. Joseph A. Cushman's interests were centered on our types of Foraminifera; Dr. and Mrs. Carroll Lane Fenton of the Buffalo Museum studied and made casts of various characteristic trilobites; Prof. B. F. Howell of Princeton consulted with Doctor Resser on their joint monograph of the Cambrian Agnostidae; Mr. David Delo of Washington University, St. Louis, was one of several micropaleontologists who consulted the type ostracods; and R. H. Palmer of the same university was occupied for a short time in researches on Cretaceous rudistids.

Dr. L. J. Moraes of the Brazilian Geological Survey and Dr. Ernest Dixon of the Geological Survey of Great Britain studied museum methods in general as applied to geological collections, with particular attention to subjects in which they were primarily interested.

Dr. Ferdinand Canu, with whom Doctor Bassler has collaborated for many years, paid his first visit to America late in the fiscal year, and greatly appreciated and enjoyed both field work and the advantages to be derived from a survey of the Museum's great collections, to which his studies have contributed so much.

In the course of reporting on various small lots of decapod crustaceans, three papers were prepared and published by Dr. Mary J. Rathbun in the *Journal of the Washington Academy of Sciences*. An additional paper, based on collections made by Dr. T. Wayland Vaughan in eastern Mexico, and Dr. W. S. W. Kew in Lower California, was prepared for publication in the *Proceedings of the National Museum*. A comprehensive paper descriptive of the decapod fauna of the coastal plain of Atlantic and Gulf of Mexico coasts of the United States is well under way.

Members of the United States Geological Survey with offices in the Museum building have been more or less constantly engaged in researches on the collections.

Drs. O. P. Hay and Remington Kellogg have, as in previous years, pursued their studies in the division of vertebrate paleontology.

W. Gardner Lynn prepared and published a short paper descriptive of the fossil turtle *Amyda virginiana*. G. L. Jepson and L. S. Russell of Princeton University used the collections to further studies of certain mammalian and reptilian groups.

It seems pertinent here to mention the recently published books of George Gaylord Simpson, *American Mesozoic Mammalia*, and Henry Fairfield Osborn, *Titanotheres of Ancient Wyoming, Dakota, and Nebraska*. Descriptions and illustrations of numerous specimens belonging to the National Museum appear in these works, and the collections have been at their service during the preparation of the papers, to the mutual benefit of the authors and the Museum.

In addition to the above, various specimens and in some cases rather extensive collections have been loaned. The records show a total of 1,551 specimens thus distributed.

(c) *Assistance by members of the staff to other Government bureaus and private individuals.*—Requests from numerous visitors and correspondents have been complied with. The department has furnished data for reply to 412 letters forwarded from the division of correspondence, and 408 lots of material have been received for examination and report. In addition, visitors frequently bring specimens in to be tested. In these cases, informal reports are given, but no record is kept.

(d) *Visits to other institutions on official work.*—Doctor Bassler, during his European trip, visited museums at Prague, Berlin, Leipzig, and Dresden, where methods were studied and information secured for future use. Dr. W. F. Foshag was detailed for a period of 10 days to examine a number of collections in the East. The following institutions were visited: Philadelphia Academy of Natural Sciences, American Museum of Natural History, Harvard Mineralogical Museum, Newark Museum, and Boston Society of Natural History. The private collections included the Vaux at Bryn Mawr, Pa., the Boyce Thompson at Yonkers, N. Y., and A. C. Burrage at Boston. On other occasions the Los Angeles Museum and the private collections of Mr. M. Vonsen at Petaluma, Calif., and B. S. Colburn at Biltmore, N. C., were inspected.

C. W. Gilmore, on his return journey from New Mexico, visited the Field Museum in Chicago in order to inspect the series of murals in their hall of vertebrate paleontology, and Dr. J. W. Gidley, incidental to his field work in the West, examined the paleontological collections in the University of Washington at Seattle, University of California at Berkeley, Los Angeles Museum of Natural History, and Colorado Museum of Natural History at Denver.

DISTRIBUTION AND EXCHANGE OF SPECIMENS

Of the sets illustrating phases of rock weathering and soil formation, 26, comprising 312 specimens, were presented to schools, and 33 sets of minerals, rocks, and ores, comprising 2,739 specimens, were likewise distributed. Additional material, prepared on special requests, comprises the following: 4,106 specimens as gifts; 2,661 specimens and 430 pounds in bulk as exchanges; 1,551 specimens as loans for study; and 144 specimens as transfers to other Government departments.

NUMBER OF SPECIMENS UNDER DEPARTMENT

The estimated totals as given by heads of divisions are as follows:

Geology, systematic and applied.....	93, 652
Mineralogy and petrology.....	138, 786
Stratigraphic paleontology.....	1, 795, 172
Vertebrate paleontology.....	24, 747
	2, 052, 357

DEPARTMENT OF ARTS AND INDUSTRIES AND DIVISION OF HISTORY

By WILLIAM DE C. RAVENEL, *Director of Arts and Industries*

INTRODUCTION

The year ending June 30, 1930, while lacking in spectacular achievements so far as the Department of Arts and Industries and the division of history are concerned, witnessed real progress in improved conditions of collections generally and bright prospects for future development. Cooperation from within and without the Museum resulted in a successful year, though limit of available space continued to prescribe activities. The increment for the year was well up to the standard as to quality and value if not numerically.

The beginning of the year found many of the exhibition halls in the Arts and Industries Building in disorder, owing to recent reassignment of spaces and the transfer of collections to and from other buildings. These halls have now all been reinstalled. An additional gallery was converted from storage to exhibition purposes during the year and assigned to collections of communication and typewriting. A good beginning was made in assembling exhibits to illustrate mechanical power, to which subject was assigned, at the first of this year, the large hall at the left from the main entrance of the building. The exhibition halls, with the exception of the coal court, are now all open to the public, though further rearrangements will continue to be made.

Experience in attempting to develop in a very limited space educational exhibits illustrative of important American industries has shown the necessity of examining very critically all material offered to the Museum for exhibition. The position of the Museum as custodian of rare specimens and precious historical documents in the form of original machines and inventions is becoming more important, and, as time goes on, the larger share of the exhibition space in several divisions will be needed to safeguard these irreplaceable objects, the remaining space being given over to showing processes and important steps in production, rather than finished products.

In the division of history the outstanding achievement of the year was the completion of the transfer of the military collections from the Natural History Building to the Arts and Industries Building and the arrangement of this immense mass of material in the latter building in exhibition and storage series—a tremendous undertaking.

The gift by Rudolf Eickemeyer of his unique photographic collection and provision in his will for a fund of \$15,000 for the upbuilding of the photographic collections of the Museum is the first instance of an endowment for a collection in this department of the Museum and is most welcome.

ACCESSIONS FOR THE YEAR

With limited funds for purchase, the Museum is dependent largely on the generosity of manufacturers and citizens to build up its industrial exhibits, some firms keeping the Museum supplied each season with their new designs. Lack of adequate space, however, precludes the general solicitation of specimens needed to round out collections. Acquisitions have now to be limited mainly to specimens needed for filling gaps in existing series, rather than to expanding the scope of the collections, though in exceptional cases unique examples are accepted in lines not previously represented in the Museum.

The total number of specimens acquired during 1930 by the department of arts and industries and the division of history was 9,557, about the same as the previous year. These were assigned as follows: To mineral technology, 356; mechanical technology, 644; textiles, 628; foods, 1; organic chemistry, 314; wood technology, 717; medicine, 797; graphic arts, 1,688; Loeb collection of chemical types, 82; and history, 4,330.

The acquisitions of the year are all of value, but only the most noteworthy can here be mentioned in detail. All are accounted for in the list of accessions given later in this volume.

Mineral and mechanical technology.—In the divisions of mineral and mechanical technology the receipt of 1,000 specimens represented 150 per cent increase over the preceding year.

Two noteworthy accessions in the division of mineral technology were the collection of Acheson memorabilia presented by the Acheson Oildag Co. and an exhibit of zinc products presented by the New Jersey Zinc Sales Co. The Acheson exhibit visualizes the life and accomplishments of Dr. Edward Goodrich Acheson through the media of original documents, medals, and other memorabilia, photographs, laboratory, and industrial products. Rising from the center of a rectangular table is a pedestal on one long side of which are grouped a portrait of Doctor Acheson and a number of the gold and silver medals awarded to him at various times during his career, including the Rumford, Perkin, and Acheson medals, two John Scott medals and a number of International Exposition medal awards. Below these is a series of three labels containing a biographical sketch of Doctor Acheson, and arranged on the floor

of the table are interesting mementoes, such as railroad passes issued to him in 1877 and 1879; his notebook of experiments and scientific observations; business cards and letters when he was associated with Edison; a copy of his paper on Lightning Arresters presented before the American Institute of Electrical Engineers in January, 1889; his book of tank capacity calculations compiled and recorded when 22 years old; and the Knight's Cross of the Royal Swedish Order of the Polar Star conferred on him by the King of Sweden. The other three sides of the pedestal and floor of the case contain pertinent material bearing on Doctor Acheson's inventions and discoveries of carborundum, artificial graphite, colloidal graphite, and Egyptianized clay. Descriptive labels explain the particular properties of these materials; vials containing samples familiarize the visitor with their appearance; and suitable objects indicate their applications to use. The carborundum section of the exhibit includes, too, the original analysis of this substance made by the Pittsburgh Testing Laboratory in 1892; a reproduction of the plumber's pot furnace with which Acheson first produced carborundum; photographs of early and modern electric furnaces; some early carborundum advertising literature; and a few modern carborundum products.

The zinc exhibit, comprising upwards of 250 objects, is designed to acquaint the visitor with the diversified uses of metallic zinc, its alloys and compounds. Beginning with a series of zinc ores from the well-known deposits in New Jersey, the process of reducing these ores to metallic zinc and zinc compounds is explained and illustrated by specimens. Following these there are grouped series of objects made wholly or in part out of zinc, including specimens showing the stages of fabrication. Among these are iron objects galvanized; zinc stampings; photo-engravers' and lithographers' plates; slush castings; permanent mold castings; etched zinc name plates; coins; zinc objects pressed into shape; objects made from enameled strip zinc; and zinc alloy roofing materials. Products made by drawing zinc are shown, and rolled zinc products such as automobile running-board molding, weather stripping, and picture frame molding are included. A large part of the exhibit is devoted to die-cast zinc products and includes automobile hardware of all sorts; a toy locomotive; a radio loud-speaker housing; gears; washing machine parts; carburetors; and an electric fan motor housing. Examples of the more familiar brasses and bronzes are included, and many of the objects are plated with nickel, chromium, cadmium, and other metals, to indicate the adaptability of zinc to electroplating.

The Corning Glass Works added to its exhibit in mineral technology three railroad lantern globes of considerable historic interest,

in that they are made of a glass called "Nonex" devised by this company and the first commercial glassware capable of withstanding sudden changes in temperature without breaking. Furthermore, from "Nonex" came "Pyrex," the well known chemical, industrial, and domestic glassware, of which the Museum has an extensive exhibit presented by this company several years ago.

Of the many desirable accessions received in the division of mechanical technology a very important one was the collection of models, drawings, and original documents presented by the Babcock & Wilcox Co., through A. G. Pratt, president. The collection is exhibited in the power hall and serves the double purpose of memorializing the work of Stephen Wilcox and George H. Babcock, pioneers in the design of steam generators, and also visualizing the development of the water-tube boiler. The exhibit, planned and prepared under the direction of Edmund Mills, of the company, consists of a series of 15 illuminated and colored drawings made by Mr. Mills, entitled "The Evolution of the Steam Boiler"; three scale models of steam boilers, that is, a half-size model of the Babcock & Wilcox boiler of 150 horsepower which won the award in the class known as "Sectional boiler" at the Centennial Exhibition in 1876; a one-eighth actual size model of a 1929 Babcock & Wilcox boiler and a one-eighth actual size model of a 1929 Babcock & Wilcox Stirling boiler; a series of five full-size sections illustrating the development of the boiler header between 1867-1929; a full-size Babcock & Wilcox oil burner (Lodi design) such as is used in modern steam generating plants; and a series of interesting memorabilia bearing on the lives and work of the founders of the company. Supplemented by the other exhibits in the division, this series of three boiler models shows very clearly the evolution of the water-tube boiler at the time when this type was coming into common industrial and power use. The 1876 type may be said to be the start of the recent design. Devoid of most auxiliary equipment, it consists of plain longitudinal drums, sinuous sectional headers, and inclined water tubes. The setting is plain fire-brick masonry with cast-iron hangers for the drum suspension. The furnace is hand-fired, and the boiler is furnished with the ornamental front so popular in early designs. It is impossible to view this boiler and then the two of 1929 without appreciating the great change that has taken place in little more than 50 years. Contrasting with the little Centennial boiler is the Babcock & Wilcox boiler of 1929, which, with its auxiliary equipment, towers some 80 feet from ash pit to breeching. This is a double-deck inclined tube boiler with interdeck superheater, contraflow air heater and return bend economizer, supported on structural steel over a Webster furnace which is lined with water-

cooled, refractory walls, and fired by a Westinghouse link grate, underfeed stoker. The Babcock & Wilcox Stirling boiler of 1929 illustrates another trend in water-tube boiler design. This is a drum type of boiler, consisting of a series of cross drums connected by long vertical and short horizontal bent tubes. This boiler is also equipped with economizer and air heater, and is erected over a powdered coal and oil-fired furnace. The memorabilia of George H. Babcock and Stephen Wilcox include their portraits and Patent Office models of several of their boiler inventions from 1867. The details of the development of the steam boiler are amplified by the 15 illuminated and colored drawings of outstanding designs from 1804 to the present. These include marine as well as land boilers.

Two other accessions of importance to the power section were a collection of original steam engine mechanisms, photographs, and drawings pertaining to the development of the George H. Corliss steam engine, presented by the Franklin Machine Co., through George R. Burt, vice president. This company was founded in 1798 and is the present owner of the original George H. Corliss Steam Engine Works. It has been said that George H. Corliss' improvements in steam-engine design did more to establish the world prestige of American engineering than did the work of any other man, and the Museum is particularly fortunate in having the cooperation of the Franklin Machine Co. in establishing a collection that will perpetuate the memory of George H. Corliss.

Other valuable additions to the power section were an original Thompson type steam engine indicator and a sectioned model of a Buckeye steam engine, presented by N. C. Hunt; two modern steam engine indicators, one with outside spring and the other with inside spring, donated by the Crosby Steam Gage & Valve Co.; and a working model of a single-acting, slide valve, vertical steam engine, the gift of Robert E. M. Bain. A valuable addition was also made to the collection of internal-combustion engines in the accession of the first heavy oil engine built and sold in the United States—known as the Hornsby-Akroyd oil engine. This was built as an experiment by the De La Vergne Refrigerating Machine Co. in 1893, and used by the company until 1895 when it was sold as the first of its type for industrial purposes.

Two accessions of note in the aircraft section were collections of aircraft propellers. The first was a series of 21 original specimens presented by the American Propeller Co. This company has been engaged in the manufacture of propellers since 1910 and fortunately preserved throughout the period of its existence examples of the various types devised and used from time to time. The series, therefore, as exhibited in the Aircraft Building, indicates clearly

the progress made in the design of aircraft propellers between 1910 and the present time. The second accession was a series of nine propellers presented by the Alden Hydraulic Laboratory of the Worcester Polytechnic Institute. These propellers, preserved through the foresight of Prof. Charles M. Allen, were used by Prof. David L. Gallup in 1911 in series of tests which he made to obtain authentic data on propeller performance. Professor Gallup was one of the first to realize that the design of propeller should vary with the type of aircraft and the power of the engine. He simulated flying, using a whirling arm, and prepared facts and figures which were of much value to the aircraft industry. The series which he used are representative of propeller designs between the period of 1903-1911, and are, therefore, of great value to the Museum aircraft collection.

The Curtiss Aeroplane & Motor Co. (Inc.), contributed an example of the Curtiss-Reed metal propeller which, it will be recalled, was a revolutionary type that enabled aircraft to exceed speeds of 200 miles an hour, and also embodied advanced steps in propeller manufacture.

Limitations in space in the aircraft section precluded the possibility of acquiring any full-size aircraft, but the Museum was fortunate in receiving several models of modern airplanes. C. B. Paul presented a model of the Ford trimotored airplane *Floyd Bennett*, the original of which was used by Rear Admiral Byrd in his flight over the South Pole. Robert Wolfsohn donated a model of a Fokker triplane such as was used by Baron von Richtofen during the World War. E. W. Topping contributed two models: One of the Sikorsky amphibian airplane, typical of the aircraft used on several commercial airlines and which established several records in 1930, and the other a model of the Lockheed *Sirius*, such as was owned by Colonel Lindbergh and used in his record transcontinental flight in April, 1930.

Two automobiles of types heretofore unrepresented were acquired for the section of land transportation. The first, a Raulang electric brougham presented by Mrs. William C. Gorgas, was purchased by General and Mrs. Gorgas in 1913 and used by them for a number of years thereafter. It is the only representative of the electric automobile in the Museum collection. The second accession was a steam Locomobile of 1900, presented by Mrs. H. H. Smith. With this automobile built after patented designs of the Stanley Bros. of Lewiston, Me., and the White steamer received some years ago, the Museum now has original examples of the two pioneer types of steam-propelled automobiles in the United States.

To the collection of railroad rails there was added a full-size model of a modern rail joint, such as is now standard with the

Delaware, Lackawanna & Western Railroad, the gift of the National Committee on Wood Utilization, Department of Commerce. The model shows two short sections of railroad rail joined by tie plates and mounted upon chairs on short pieces of creosoted railroad ties. Another most interesting and historically valuable addition in this section was the first mechanical tie-tamping outfit successfully used commercially in the United States, presented by the New York Central lines. This was manufactured by the Ingersoll-Rand Co. and was placed in service on the New York Central Railroad in 1913. The outfit consists of a small railroad car on which is mounted an air compressor operated by a gasoline engine; two compressed air machines equipped with a special tie-tamping tool; and the necessary fittings, air hose connections and the like. A third accession in this same section was an electromechanical slot presented by the Illinois Central Railroad Co., through the American Railway Association, signal section. This forms an interesting addition to the collection of original railway signalling apparatus, which has been in the course of development for the last five years.

The section of metrology was particularly fortunate in the acquisition of historically valuable specimens. The most important single accession probably was that of nine pieces of experimental aerial navigation instruments of the period from 1912 to 1918, presented by the Sperry Gyroscope Co. In addition, this company donated a very early example of the high intensity arc lamp developed by the late Dr. Elmer A. Sperry for military searchlights; a ship gyrocompass similar to the first devised to automatically pilot a ship; a gyrocompass ship's course recorder; and the first experimental gyrocompass developed by Doctor Sperry.

The United States Coast and Geodetic Survey transferred to the section 26 specimens of early surveying and navigation instruments. This material, which includes instruments of 50 to 75 years of age, was added to the already large collection of Coast and Geodetic Survey instruments. An early dividing engine, also received by transfer from the survey, and which was used in the construction of surveying instruments by the survey from 1835 to 1917, is a most interesting piece. It fits in very well in the exhibit, showing the development in the art of instrument making, since the Museum has the original Ramsden dividing engine of 1775.

Francis D. Shoemaker presented several very interesting surveying instruments, including a surveyor's compass, complete with Jacob's staff, of a type used about 1800 or slightly earlier, and a surveyor's Y level and compass with tripod, a type not previously represented in the collection. This compass is of particular interest, locally, as it was used by Abner Pierce, millwright of Pierce's Mill in Rock Creek Park. Prof. Richard S. Kirby gave a most interesting old surveying

instrument, made about 1868 and used by his father for general county surveying. It combines a transit and compass, and as the latter is provided with a special swiveling device, the instrument also embodies the features of a level.

Five timepieces were added to the watch and clock collections—four clocks and one watch. Three of these were typical of the very modern electric clock and were presented by the New Haven Clock Co. for addition to the valuable collection presented to the Museum by this company several years ago. A shelf clock, quite similar to the famous Eli Terry shelf clock of the early nineteenth century, and made by Eli Terry, jr., was donated by I. Ostrach. The watch was received as a bequest of the late Chester Sumner Kingman, Brooklyn, N. Y. It is a complicated gold Swiss watch of the period of 1903, indicating various times, and possessing a perpetual calendar, striking mechanisms, phases of the moon, etc.

To the section of hand and machine tools was added a total of 271 specimens. Of note is a collection of 251 carpenter's hand tools originally exhibited at the Centennial Exhibition at Philadelphia in 1876, and receiving the highest award granted by the centennial award commission. This includes a brace with bits of many types, drawknives, squares, screw drivers, and tool-handle sets. There was also acquired a small collection of handmade clock-maker's tools of the period of about 1760, comprising a wheel and pinion cutter, lathe, vise, screw setter, punch, and hammer. Charles G. Van Ness donated a number of early tools, including a saw set, screw driver, and caster counterboring tool. Several early forms of spiral screw drivers and carpenter's planes were presented by Paul Edward Garber, Charles Carey, and Isador Dyer, all of the Museum staff.

Two typewriters, heretofore unrepresented in the Museum collections, were received during the year, namely, a Lambert, presented by F. E. Slater, and a Crandall, presented by Ben G. Davis. There was also received in the section of communication, as a gift from James C. Rogers, a large collection of experimental apparatus of the late Dr. J. Harris Rogers, of Hyattsville, Md., the well-known telegraph and radio inventor. This includes not only the complete visual synchronous printing telegraph system that was developed by Doctor Rogers in the period 1887-1890, but also a section of the underground wireless antenna devised by Doctor Rogers and used successfully in 2-way wireless communication between Hyattsville, Md., and other distant stations, such as the Eiffel Tower, Paris, France.

Textiles, foods, organic chemistry, wood technology, and medicine.—The accessions for the year in the division of textiles, the sections of foods, organic chemistry, and wood technology, and in the division of medicine aggregated 2,461 specimens. This number

does not include several hundred original patent models still under examination, some of which will be definitely added to the collections when their historical or educational value has been proved. The additions to the collections were assigned as follows: To textiles, 632 specimens; foods, 1; organic chemistry, 314; wood technology, 717; and medicine, 797. Brief mention is made below of acquisitions deserving special attention.

The increasing popularity of cotton as a dress material is reflected by 20 specimens of fabrics contributed by the Cotton-Textile Institute (Inc.). These 20 pieces are representative of 60 of the most outstanding cotton fabrics for summer wear selected by a committee of five stylists and experts in fashion, from 1,000 of the finest American-made cotton textiles, submitted by a large number of manufacturers, after all marks identifying their source had been removed. Among these is a print of unusual interest due to its unique design, called the "Hoover scrawl." It is an adaptation of one of the President's informal sketches made during a telephone conversation, which was then autographed and presented to a newspaper reporter who had witnessed the development of the drawing.

Marshall Field & Co. donated three series of printed cotton drapery fabrics manufactured by the company. One consists of an old and worn fragment of an original "Toile de Jouy," printed by hand from wooden blocks nearly a century and a half ago at Jouy, France, and monochrome prints having the same design in five varied colors, but produced by the modern method of printing from etched copper rolls. The second series consists of photographic copies of four old colored etchings, engraved in 1803 by Eugene Bell from paintings done in 1800 by Guy Morland, which were published in London as the Fox Hunt series. These furnished the inspiration for the design used on the six polychrome prints in varied color effects done by modern methods. The third series begins with a small, surface-printed specimen of what is said to be the first cretonne printed in the United States from wooden rolls, upon which the design is outlined with strips of brass set on edge, the inclosed spaces being filled in with felt to form the printing surface. Also fabrics of the same type, in brightly colored floral patterns, as produced to-day by the most improved methods of this same process.

To the exhibit of synthetic fibers and their applications the American Bemberg Corporation contributed a series of specimens illustrating the manufacture of synthetic cellulose yarns from cotton linters by the cuprammonium process. This corporation uses a stretch-spinning method by which the filaments are stretched while being spun, resulting in the formation of filaments finer than those pro-

duced by the silkworm. The exhibit includes a skein of 15 denier yarn composed of 25 filaments, whereas the average size of synthetic yarn is 150 denier and contains from 90 to 112 filaments. Specimens of plain, printed, and fancy woven goods together with knitted goods and fine hosiery complete the series showing the applications of this type of rayon.

Mrs. Laura M. Allen added to the many examples of hand-woven fabrics, collected for the Museum and presented by her in previous years, seven pieces of hand-weaving and two photographs. To Mrs. Frederick H. Bishop, the Museum is indebted for the gift of a quaint sample book of cotton prints with recipes for dyeing and printing them, which was used about 1827 by Samuel Dalrymple, grandfather of the donor.

A very interesting and ingenious machine, invented a few years ago by Samuel and William Leavin, repairs the ladder like runs in silk hosiery. What the machine does is to reknit the loops of the broken or pulled out thread back into the fabric to its original place. The original machine, as worked out by the Leavin brothers, and a new, present-day, commercial machine were deposited by the Knitbac Service Company (Inc.). It is planned to demonstrate the working of this machine by means of a moving-picture film.

Further study of the large number of original patent models, brought to the Museum two years ago for examination, has resulted in adding to the collections 468 sewing machines, or parts of machines, which make a nearly complete record of the development of these great labor-saving inventions. A small, hand-operated sewing machine, making the chain stitch, which was popular about 1869, and because of its low price sold in competition with the standard machines of that period, controlled by the Sewing Machine Combination, was presented by Dr. D. N. Shoemaker.

To acquaint the Museum visitor with the fact that high-grade papers are made of other materials than wood pulp, the Writing Paper Manufacturers' Association contributed specimens showing stages in the manufacture of rag-content, loft-dried paper, and a series of photographic illustrations of paper manufacture.

The family of Leander James McCormick, through Robert Hall McCormick, presented eight models of labor-saving farm machinery invented and constructed between 1829 and 1835 by Robert McCormick, of Walnut Grove, Rockbridge County, Va. These models include the early types of the McCormick reaper. They form a valued addition to the rapidly growing collections illustrating the history of agriculture in the United States.

The Rubber Manufacturers' Association (Inc.) contributed 266 specimens and photographs, illustrating the preparation and appli-

cations of rubber, including gloves, inflated balls, toys, caps and shoes, sponges, raincoats, and typewriter parts.

To the leather section was added a fine leather sidesaddle and a pair of leather saddlebags, presented by Rev. Harvey E. Crowell; a small leather-covered trunk, loaned by Commander E. A. Cobey, United States Navy, which had been used by his family for more than 100 years; and a series of 24 photographic transparencies showing the grain of as many kinds of leathers, transferred from the leather and paper laboratory of the Department of Agriculture. The Bakelite Corporation sent from their plant at Bloomfield, N. J., 12 specimens showing uses of the phenol resinoid plastic, "Bakelite."

The exhibits in wood technology were increased by two chests of eastern red cedar from the Tennessee Furniture Corporation; two fine, finished boards of southern white cedar, the gift of the Waccamaw Lumber Corporation; and by a billet of teak wood taken from the hull of the ancient Australian convict ship *Success*, donated by H. C. Wooten, its captain. This ship was constructed entirely of Burmese teak and launched in 1790, making it the oldest vessel now on the high seas. The durability of this wood is appreciated when it is realized that the vessel has had to resist heavy armed attacks, was for a time submerged in the harbor at Sidney, New South Wales, and is still seaworthy after 140 years.

Many new specimens of scientific value were added to the study collections of woods. The largest group of study samples was received from the Yale University School of Forestry, through the cooperation of Prof. Samuel J. Record, and comprised 598 woods from Liberia and other parts of Africa, India, China, Japan, Philippine Islands, Australia, New Zealand, New Caledonia, Hawaii, England, Sweden, Chile, Panama, the West Indies, and the United States. The Liberian specimens were collected by G. Proctor Cooper, of Yale University, in cooperation with the Firestone Plantations Co. while land was being cleared for rubber plantations, the woods and herbarium specimens being obtained from the felled trees. The plant specimens were identified at the Royal Botanic Gardens, Kew, England. E. J. Lee sent in exchange 74 specimens of woods from Australia and the Andaman Islands, nearly all heretofore unrepresented in the Museum. Prof. R. Kent Beattie, of the office of forest pathology, Department of Agriculture, in connection with field work in Japan, collected 20 wood specimens of relatives of the chestnut, many of them also new to the Museum.

The most valuable addition of the year to the division of medicine was a model presented by the Rex Research Corporation. This model was designed to impress upon the visitors that flies and

mosquitoes are disease carriers. Insanitary conditions which facilitate the breeding of flies and mosquitoes are contrasted with sanitary measures which must be adopted if this method of disease transmission is to be reduced to the minimum. This model supplements the exhibit which pictures these and other disease-carrying insects, describes their life habits, and the manner in which they transmit disease.

The American Society for the Control of Cancer, which has undertaken the task of leading the movement to reduce suffering and death from cancer, contributed a special exhibit on the subject. By models, graphic three-dimension statistical charts, and labels, the information is conveyed that cancer strikes at each period of life, and that it ranks second as the cause of death in the United States. It attacks all parts of the body; more women than men die of the disease (103.2:79.2); and cancer deaths have increased from 63 per 100,000 population in 1900 to 96 in 1927.

School hygiene was one of the subjects originally included in the plan for the development of the section of public health, and a model was early designed for that purpose. Construction of the model, however, was delayed until this year. As completed the model consists of a full relief foreground which blends into a painted background and side panels. An insanitary school is shown on the left, attention being directed to the various menaces which develop in such surroundings. On the right is a modern school situated in a healthful location, appropriately constructed, and properly equipped and lighted to serve in developing future citizens, both mentally and physically. This model directs the attention of visitors to a phase of the general health program in which each community can assist whenever a school is to be constructed.

A contribution of 116 specimens, for addition to the mineral drug collection, the therapeutic classification of medicine series, and the synthetic drug exhibit, was received from Merck & Co. (Inc.) and added to the section of pharmacy. The specimens were especially prepared for the Museum under the direction of B. L. Murray, of the company's scientific staff, who has served as a member of the general committee of revision of the United States Pharmacopoeia.

An exhibit designed to furnish information concerning the principal poisonous serpents of North America, to diffuse knowledge relative to neutralizing remedies provided by modern scientific methods, and to serve as an aid in the campaign for the reduction of deaths from snake bites, was added to the public health collection. Material for this exhibit was donated by the H. K. Mulford Co.

Parke, Davis & Co., which has cooperated in the development of the medical collection for many years, has undertaken the task of

contributing material to illustrate specific phases of pharmacy not heretofore represented. The first exhibit of this series, which portrays the manufacture of solutions for hypodermic administration, was received and installed during the year.

Among the many miscellaneous items received, the following are worthy of mention: A transfer of 34 charts dealing with the subjects of adolescence and sex, from the United States Public Health Service; a deposit of 14 books containing records of the tenth revision of the United States Pharmacopœia, from the United States Pharmacopœial Convention (Inc.), through Dr. E. Fullerton Cook; a loan of six specimens relating to the life of the late Maj. Gen. William C. Gorgas, from Mrs. William C. Gorgas; and the following donations: 7 specimens and 14 photographs illustrating stages in the manufacture of medicinal cod-liver oil, from The E. L. Patch Co.; 19 specimens for use in outlining the history of suturing, from Davis & Geck (Inc.); a medicine chest used by R. Dorsey Mohun from 1880 to 1910 on various African expeditions, from Mrs. R. Dorsey Mohun; and specimens of medicinal preparations derived from the animal kingdom, from Armour & Co., Sharp & Dohme (Inc.), Parke, Davis & Co., and the H. K. Mulford Co.

Graphic arts.—The year was a banner year for the division of graphic arts with its section of photography. An aggregate of 1,688 specimens was added to the permanent collections, and some 1,049 additional specimens were received as loans, most of which had been returned to the owners before the close of the year.

In the annual report for 1929 an exhibit of silk-stencil printing was described as one of the features of the year. This year an entirely new exhibit has taken its place, covering the process more completely, the addition of a small hand-printing machine, contributing much to its clearness. Heretofore 99 per cent of the impressions have been printed by hand, but a power press has now been invented which prints about 1,500 impressions an hour. This process was patented in 1918 by the Selectasine Patents Co. The present exhibit was contributed by several firms as follows: Selectasine Patents Co. gave 15 specimens and printing apparatus; The Walling Process (Inc.), furnished 28 specimens; and Leo H. Fuller (Inc.), 9 specimens, some being in water color.

Benson B. Moore continued his interest in the Museum by the donation of one proof in black and white, one celluloid color plate and one finished print in colors, illustrating the donor's method of printing etchings in color. This strictly new way of obtaining a color-print is as follows:

First a proof in black and white is made from the plate in the usual way. This proof is soaked in water until it is thoroughly wet,

and then, while still wet, a piece of mat-surfaced celluloid as large or larger than the paper is pressed in contact with the print, mat surface down. The areas to be colored are traced in outline with black waterproof India ink and a fine line is drawn, representing the outer edge of the plate mark on the print. The celluloid is removed from the print and colored on the mat side with oil paints or colored etching ink, thinned with Siccattiff de Haarlem. When the coloring has been completed, the print to be colored is dampened and laid on a piece of blotting paper on the bed of the press. Then the ink border line is carefully registered on the celluloid with the plate mark on the print and passed through the press with light pressure. The celluloid is carefully removed from the print, and the print is placed between two pieces of blotting paper and again run through the press under heavier pressure to remove any superfluous color. Two prints can often be made from one painting by using very heavy pressure on the second printing.

The most important single specimen received was donated by Earle W. Huckel, and consists of an illustration in four colors contained in the book *Histoire de la Parole* by Court de Gebelin, published in 1776. This illustration is of especial interest as it was made by the method used by Jacob Christoph Le Blon (1667-1741). Le Blon, a Frenchman working in London in 1720 to 1732 and making color prints on the 3-color theory of Sir Isaac Newton, found that in printing a better result was obtained by the use of an additional plate printed in black. He was the first person to use the method and his prints are very scarce. The illustration in *Histoire de la Parole* is by M. Gauthier Dagoty (about 1717-1785) an assistant of Le Blon's, and is by his method, that is, by the use of four mezzotint plates printed in red, yellow, blue, and black. This print, which depicts the organs of the throat, is technically a fine impression and fills a gap in the historical series.

One of the first to produce collotypes commercially was Graphische Kunstanstalt Albert Frisch of Berlin, and this firm still continues to produce prints of high quality. Eberhard Frisch, visiting the Museum last November and seeing early work of his father upon exhibition on his return to Berlin sent as a gift 22 examples of the work now being done by his firm, consisting of 14 collotypes and a set of 8 progressive collotype proofs.

An accession of 1,210 prints was received as a gift from J. Townsend Russell, jr., a large per cent being filed in the study series. Such American engravers as David Edwin, Seth Wells Cheney, and his brother John Cheney and M. I. Danforth are represented. John Cheney (seven prints) was considered one of the best engravers of small prints in America. Two large prints by Alfred Jones, an

American engraver, are also of quality. The outstanding print of the whole series is the large mezzotint of St. Stephen by Robert Dunkarton (1744 to about 1817), after the painting by Benjamin West. It is approximately 35 inches by 22 inches, and an early impression, published in 1801. Dunkarton is one of the well-known mezzotint engravers of England.

A Braille slate for writing reading matter and music for the blind was presented by Miss Regina Anderson of Philadelphia, who used this slate in Sweden over 50 years ago. This is in perfect condition and is different from any in the Museum.

Examples of fine printing in the United States continue to come to the division consisting of books, pamphlets, and broadsides. Gifts in this line were received from the following firms and individuals: The Windsor Press, William E. Rudge, Harry H. Wisner, Ross H. Maynard, and the Carnegie Institute of Technology. Hayden T. Giles of Worcester, England, continues to add bookplates to the collection, sending 12 this year.

Mrs. Harriet W. Nutting contributed 108 lithographs, engravings, and etchings, and also a printed list of Thomas Sully's prices for his portraits. An old handmade valentine was donated by Mrs. Clarence Weaver, and is probably 150 years old.

Six wood block prints by the Japanese method, the work of Miss Elizabeth Keith and Miss Lilian Miller, were acquired. These contain technical qualities not in any prints previously in the Museum and add materially to the small collection of wood block prints in color.

A letter written on a grain of rice came as a gift from E. L. Blystone and is of interest on account of the minuteness of the lettering.

In the section of photography the gift of Rudolf Eickemeyer, medalist of the Royal Photographic Society of Great Britain, is the most important single accession received. It consists of 83 especially framed pictorial photographs, the work of the donor; awards which he won for artistic photography, medals and cups to the number of 61; and 15 portfolios containing a series of photographic prints taken on his travels and upon other occasions. The 83 examples of high artistic quality in themselves are also valuable because they show the results of practically all the processes of photographic print production, for Mr. Eickemeyer tried out the various mediums until the desired results were obtained.

Besides the examples of his own work, Mr. Eickemeyer donated his library of 67 volumes, and two historical specimens of great interest, one an artotype copy of the first portrait of Dorothy Catherine Draper made in 1839 or 1840 by her brother Prof. John

William Draper (1811-1882). The face of the sitter was dusted with white powder, a procedure soon found to be unnecessary. This particular print is interesting because it was presented to Mr. Eickemeyer by Professor Draper's son, Daniel. The other historical specimen is a wet plate by a famous chemist, Prof. Charles F. Chandler, (1836-1925), of Columbia University.

In addition, Mr. Eickemeyer made provision for the future increase and proper care of the photographic collection of the Museum by the provision in his will for the establishment of a fund of \$15,000, the income of which is to be used for this purpose. His gift is one of great importance not only at present, but for all time to come.

The section devoted to photographic apparatus received some very worthwhile specimens. The Eastman Kodak Co. added to their exhibit the following items: 4 cameras in brilliant colors instead of the usual black coverings; 5 shutters of new design, the "Kodamatic" being the most accurate working to a plus or minus 10 per cent of the speeds marked on the shutter; 1 Ciné kodak and 1 projector, using 16-millimeter film. Color in motion pictures is the latest development for the amateur and this camera, with the necessary filters and equipped with a special film, can be used for color work.

The work of the Eastman Kodak Co. in professional motion pictures in color is represented by a display of the Kodachrome process. This process is based upon the differential hardening action of silver upon gelatine when treated with the proper bleaching agents. Negatives are taken in pairs, through red and green filters upon super-sensitized panchromatic film, the resultant images alternating along the length of the negative. From this negative, a master positive is made by contact, and this is then printed by means of a special projector printer so that the red and green images fall in register upon opposite sides of a double coated film. This film, after development, bleaching and fixing, is a clear gelatine film containing the images in the form of hardened gelatine on opposite sides. The two sides are now dyed by machine, the images from the red filter being dyed blue-green and from the green filter, red. The resulting film may be run in any motion-picture camera.

F. J. Rembusch, through the Motion Picture Producers & Distributors of America (Inc.), contributed a synchronizer for an Edison talking machine and an early motion-picture projector of historical value.

To the C. Francis Jenkins collection were added three machines, namely, a radio still picture camera, a radio motion-picture receiver, and a radio weather map receiver. These machines represent the latest development of the Jenkins Laboratories in the transmission and reception of photographs and movies by radio.

In contrast to the modern kodak, Paul Garber, of the Museum staff, contributed a very early Eastman kodak No. 1 with carrying case, manufactured about 1892 and marking the beginning of the present-day film camera. This No. 1 kodak carried 100 feet of film and, after exposure, the camera was returned to the factory for finishing the film and for reloading. J. W. Aughiltree donated a detective camera in the form of a binocular and called a "Binocular Camera." This is of early design and a good illustration of the efforts made to disguise the camera so that photographs could be taken without raising suspicion.

Upon the closing of the Rice Studio, a pioneer in the photographic field in Washington, Mrs. Creighton Rice gave to the Museum a very old camera stand, made of cherry and mahogany with turned spindles like a 4-poster bed and of the same period. The studio was first operated by M. P. Rice who was succeeded by his son, Creighton Rice, and for about 75 years the studio had been in the commercial field.

A 4 by 5 view camera made about 1888 by the Gundlach Optical Co. was the gift of R. P. Tolman of the Museum staff and serves to illustrate the advance made in cameras of this class in the past 40 years. The Bureau of American Ethnology transferred an old telephoto lens mounted in a triplex shutter. This was used in the West by photographers on some of the early Geological Surveys, De Lancey Gill, who was with W J McGee, making use of it in surveys in Arizona and New Mexico.

Miss Florence A. Pardee gave some fine daguerreotypes, the work of her father, Phineas Pardee, a pioneer daguerreotypist in New Haven, Conn., working as early as 1843. One mounted in a gold clasp with a band of woven hair to be worn as a bracelet is the smallest daguerreotype in the collection. It is in fact the smallest one the writer has ever seen, being one-half by three-eighths inch in size. After Miss Pardee's death, Miss E. B. Whittlesey sent the Museum the remaining family portraits which Miss Pardee left to the Museum consisting of three daguerreotypes, two ambrotypes, and an odd combination of tintype emulsion on a piece of colored glass. The daguerreotype series was further increased by two excellent daguerreotypes and a very beautiful daguerreotype case donated by Frank S. Zappulla.

Will H. Towles contributed the first autochrome portrait made in Washington, a beautiful specimen made by him in January, 1908.

A number of notable additions were contributed to the pictorial collection, which now contains examples of the work of a large number of artists. Dr. Max Thorek, the well-known surgeon of the American Hospital of Chicago, presented six of his prints. Floyd

Vail, who has long been a friend of the Museum, gave six bromoils representing his best work. E. I. McPhail sent five of his carbon prints which have been shown in exhibitions the world over, one being a self-portrait. Two bromoil lithographs of fine quality were acquired, the work of Fred Judge of Hastings, England, who is said to be the originator of this process. W. J. Roberts, Luton, England, made a generous gift of two of his prints in bromoil; for charm and dainty presentation of rural England, Roberts has few equals. Among the few pictorialists working in gum, J. Harold Leighton, Bradford, England, stands in the front rank, and his donation of four prints, in single-printed gum, adds prestige to the collection. Frederic G. Tutton gave two photographs in color by a process which he has perfected, known only to himself, and which gives wonderful color results.

History.—The total number of specimens received during the year by the division of history was 4,330, somewhat less than received during the previous year.

The most important addition to the antiquarian collections included a silver tablespoon, a ladle, a cream pitcher, and a sugar bowl, which were owned by Thomas McKean, a signer of the Declaration of Independence, and presented to the Museum by Mrs. Francis T. Redwood. Five pieces of chinaware owned and used in the White House by President James Madison were donated by Miss Mary M. McGuire. These consisted of a platter, a bowl, and three dishes. From Mrs. Robert J. Walker, 3d, were received four interesting pieces of silverware. Two of these, a cream pitcher and a sugar bowl, were owned first by President Martin Van Buren and later by the Hon. Robert J. Walker, United States Senator from Mississippi, 1836–1845, and Secretary of the Treasury, 1845–1849. Miss Anna L. Dawes donated a large silver table centerpiece which was presented to the Hon. Henry L. Dawes, United States Senator from Massachusetts, 1875–1893, on the occasion of his silver wedding anniversary, May 3, 1869.

The most notable addition to the costumes collection was a rose chiffon velvet gown worn by Mrs. Calvin Coolidge in 1929 on the occasion of the last formal reception at the White House during the administration of her husband, President Calvin Coolidge. This gown was presented to the Museum by Mrs. Coolidge. Another interesting accession to the costumes collection, donated by A. Nelson Lewis, was an old rose and green striped silk evening dress which was worn by Mrs. Anne Heyward Gibbons at a reception given to President George Washington at Savannah during his southern tour in 1791.

The military collections of a personal character were increased by a gold mounted sword which was presented by the State of Vir-

ginia to Col. John Garland, United States Army, in recognition of distinguished services during the war with Mexico. This sword was lent to the Museum by John S. Garland. To the military collections was also added a gold mounted and jeweled saber which was presented to Brig. Gen. John Wynn Davidson, United States Army, by the noncommissioned officers and privates of the First Iowa Cavalry in 1864. This saber was lent by Lieut. Bushrod Hoppin, United States Army. A very handsome Mexican sword owned during the early part of the twentieth century by Maj. Gen. Charles F. Humphrey, United States Army, was presented to the Museum by General Humphrey, through Col. E. H. Humphrey, United States Army.

An addition of special importance to the type collection of military material was a set of uniforms and uniform accessories of the type worn during the World War and subsequent to that period by officers and enlisted men of the Turkish Army. This very interesting collection was presented to the Museum by the Government of Turkey through Ahmet Mouhtar Bey, Turkish Ambassador to the United States.

Additions to the naval collections included the revolver worn by Ensign Worth Bagley, United States Navy, when killed in action on the United States torpedo boat *Winslow*, May 11, 1898, a silver-mounted revolver presented by the State of West Virginia to Chief Gunner Cox, and a Congressional Medal of Honor awarded to Chief Gunner Cox in recognition of extraordinary heroism on the U. S. S. *Missouri*, April 13, 1904, presented by Chief Gunner Robert E. Cox, United States Navy.

An unusually large number of interesting specimens were received for the numismatic collection. The American Numismatic Association added to its large and interesting loan collection in the Museum specimens of the recent coinages of the following countries: Belgian Congo, Bolivia, Czechoslovakia, Cameroun, Costa Rica, Ecuador, Finland, Germany, Guatemala, Greece, Lebanon, Luxemburg, Mongolia, Netherlands, Poland and Sarawak. The most interesting of these were several very fine examples of commemorative silver coins recently issued by the German republic.

From the Bureau of the Mint of the Treasury Department was received an aggregate of 318 ancient and modern European coins and 32 United States coins struck in 1929. The Treasury Department also transmitted bronze medals commemorating the inauguration of President Hoover in 1929 and the meetings of the Annual Assay Commission in 1927, 1928, 1929, and 1930.

The philatelic collection was increased by 3,620 specimens, of which 3,449 were specimen stamps received by the United States Post Office Department from the International Bureau of the Uni-

versal Postal Union, Berne, Switzerland, and transferred to the Museum. These represent in triplicate regular and commemorative issues of all the countries belonging to the Union.

Of special interest, among other donations, was an album presented by Hon. Liu Shu-fan, Director General of Posts of China, containing a collection of 137 Chinese postage stamps issued between 1913 and 1929.

The United States Post Office Department transferred to the Museum the letter bill which accompanied the first official round-the-world dispatch of mail carried on the *Graf Zeppelin* in August, 1929, and Eugene Klein donated an envelope also carried on this trip.

Commemorative stamps issued by the Post Office Department and copies supplied the Museum included those commemorating the golden jubilee of the incandescent lamp; the sesquicentennial of the Sullivan expedition in New York; the one hundred and thirty-fifth anniversary of the Fallen Timbers and the services of Gen. Anthony Wayne; the completion of the Ohio River canalization; the tercentenary of the founding of the Massachusetts Bay Colony; the two hundred and fiftieth anniversary of the founding of Charleston, S. C., and the two hundred and sixtieth anniversary of the founding of the Province of Carolina; and the European Pan American flight of the *Graf Zeppelin*. There were also commemorative stamps from 37 foreign countries.

INSTALLATION AND PRESERVATION OF COLLECTIONS

The year was one of unusual activity in the reinstatement of exhibition halls and individual exhibits.

Mineral and mechanical technology.—The major portion of the staff's attention this year in the matter of exhibition was concentrated in the power hall, which was acquired as additional exhibition space near the close of the previous year. The work involved the transfer and installation of collections distributed in other halls and in storage, and the exhibition of a number of new and valuable accessions received during the year. As mentioned in the last annual report, the west south range gallery was converted from storage to exhibition space, and during the present year the gallery adjacent to this one, the southwest range gallery, was similarly converted, and in this newly acquired area a number of collections pertaining to communication and typewriting were installed. With the opening of this last available gallery area, the visitor may now make a complete circuit without encountering any closed areas on the upper floor of the southwest section of the Arts and Industries Building.

Aside from these major activities, the preparatorial staff was constantly engaged in the maintenance of the older collections, including

many operative exhibits. Furthermore, a number of important models were designed and constructed in the laboratories. These included an Egyptian bow lathe, an Egyptian pin lock, a model of James Watt's steam engine indicator, a model of the prairie type of windmill, a model of Faraday's first dynamo, a model of the Launoy & Bienvenue helicopter, and a full-size reproduction of the propeller used by Santos-Dumont in his dirigible balloon of 1903.

In preparation for the new coal mining exhibit, the large central coal-mining model in the coal court was cut down in size and the whole of the remaining model reconditioned throughout, including the complete repair of the working machinery. Data for approximately 500 descriptive labels were prepared and are ready for the printer. With the exception of the coal court, the exhibition halls assigned to the divisions are in a very presentable condition and the status of the collections is quite satisfactory.

Textiles, foods, organic chemistry, wood technology, and medicine.—Eighteen installations of new exhibits or rearrangements of exhibits already on view were made in the textile halls during the year, the most important of these being the new textiles contributed by the Cotton-Textile Institute and Marshall Field & Co., and the patent models relating to agriculture. Fresh labels were prepared for the exhibits of sewing machines and for the models of agricultural machinery.

In the section of foods, the experiment of rearranging the observation beehive by putting a large glass dome in place of the top section was repeated this spring.

Since available exhibit space allotted to the section of wood technology was utilized last year by the Rudolph Block collection installation of exhibits was reduced to four, three of them new, and a rearrangement of the Kroydon golf club series. The new material set-up comprised two cedar chests, an osage-orange flight bow for the archery series, and a fine southern white cedar board in the series of commercial woods of the United States. During the year 708 wood specimens were added to the study collection, and 2,000 specimens were cut during the year, part for the study collection, but the greater part for distribution and exchange.

In the section of organic chemistry 3 new installations and 10 rearrangements of old ones were made during the year. Many labels for the exhibits in this section were added with great improvement to the appearance of the collections.

Eleven new and 60 rearranged installations were made in the division of medicine during the year, the most important being the 4 new exhibits added to the public-health series. These additions deal with the important subjects of disease-carrying insects, venom-

ous serpents of America, cancer, and school hygiene, and sanitation. Three of the older models were repainted and otherwise improved. The history of the pharmacy series was augmented by an exhibit prepared at the Museum to show the evolution of standard books of official medicine, the dispensaries, pharmacopoeias, and formularies. Steps were taken during the year to enlarge the scope of that part of the pharmacy collection dealing with the industrial phases of medicine making. New exhibits illustrating progressive steps in the manufacture of ampoules, sutures, and cod-liver oil were developed, and the animal and chemical drug collections were improved by the addition of new material, the replacement of deteriorated specimens, and necessary rearrangements. In the materia medica collection a series of the vegetable drugs of the United States Pharmacopoeia was placed on exhibition in response to requests of classes which visit the Museum. This will facilitate the study by students of medicine and pharmacy in that part of their work which requires a familiarity with these substances.

The remainder of the public-health exhibits was illuminated during the year. Four of the old pier cases of the division were remodeled, and the interiors of all the cases on the east gallery were painted. While the cases were being painted, the specimens were cleaned, and in many instances improved forms of installation devised.

The matter of preserving the collections in the division of medicine received particular attention. The work of replacing unrepresentative specimens in the exhibition series was continued, and satisfactory progress made. The entire exhibit of synthetic medicinal chemicals was replaced with new material; many of the type specimens of therapeutic classes were also renewed; and quite a number of the animal drugs exchanged for new material.

Graphic arts.—In the division of graphic arts, the silk-stencil exhibit was rearranged with entirely new specimens. The Benson B. Moore method of printing color-etchings was installed. Seventeen engravings of Frederick Girsch were rematted and covered with glass, as were many other prints. A mezzotint in four colors, gift of Earle W. Huckel, was placed in its proper location in the series. A group of five wood-block prints in color by Elizabeth Keith and Lilian Miller add another attractive exhibition feature. A Braille slate was placed in the exhibit for the blind. Four specimens were added to the exhibit of microscopic engraving, and about 50 specimens of recent accessions were placed on view from time to time.

Many thousand uncatalogued specimens, as well as a thousand or more catalogued ones, were filed in the reserve series, and the storage material was rearranged.

In the section of photography the Eickemeyer collection was installed. Its display made necessary the return to storage of much of artistic value. This section, since it has been in the charge of Doctor Olmsted, has made steady progress, and requires that some supplemental space be provided, so that the series can be adequately developed.

As customary, two series of temporary loan exhibitions, mainly of current work, were held during the year, involving the installation of over 1,000 specimens. Ten of these loan exhibitions, relating to graphic arts, were shown in the Smithsonian Building, as follows:

August 1 to 31, 1929: "The Fifty Prints of the Year," exhibited by the American Institute of Graphic Arts.

October 7 to November 3: 34 wood block prints and 5 etchings in color by Elizabeth Keith, of England.

November 4 to December 1: 12 water colors and 19 etchings by Paul Whitman.

December 2 to 29: 45 etchings and 7 linoleum block prints by Dwight C. Sturges.

December 30, 1929, to January 25, 1930: 60 etchings by George E. Burr.

January 27 to February 23: 30 drypoints by Benson B. Moore.

January 27 to February 24: 40 drypoints by Rodney Thomson.

February 24 to March 23: 24 etchings by Arthur W. Hall and 21 wood block prints in color by Mrs. Arthur W. Hall.

March 24 to April 20: 46 etchings by A. C. Webb, Paris, France.

April 21 to May 18: 27 etchings and 14 drawings by Gordon Grant.

The eight loan exhibitions of pictorial photographs were shown in the photographic gallery in the Arts and Industries Building, as follows:

September 10 to 30, 1929: 50 prints by Fred Judge, F.R.P.S., of Hastings, England.

October 1 to November 30: 50 prints in bromoil transfer by Chris. J. Symes, F.R.P.S., of Birkenhead, England.

December 29, 1929, to January 30, 1930: 40 bromoils by W. J. Roberts, of Luton, England.

February 1 to March 31: 58 single-printed gum prints by J. Harold Leighton, F.R.P.S., of Bradford, England.

April 1 to 30: 103 pictorial photographs, the Eleventh Annual Salon of the Buffalo Camera Club, through the courtesy of E. I. McPhail.

May 1 to 31: 55 prints by Prof. Rudolf Koppitz, of Vienna, Austria, through the courtesy of Joseph M. Bing.

May 1 to 31: 54 bromoil and bromoil transfer photographs by Floyd Eugene Vail.

June 1 to 30: 212 pictorial prints, Third International Invitation Salon of the New York Camera Club.

History.—During the year much progress was made in the re-arrangement of the exhibition series of the historical collections to bring it in agreement so far as possible with the scheme of classification outlined in the previous report. The assignment of the west hall to this division, primarily for the military collections of the

World War period, has consolidated the space assigned the division and made feasible a rearrangement of the historical collections generally.

The space at present assigned to the division of history in the Arts and Industries Building includes the following units: (1) the north hall, (2) the west-north range, (3) the northwest hall, (4) the northwest court, (5) the west hall, (6) the west gallery, (7) the rotunda, (8) the northeast court, and (9) a part of the southeast gallery.

The antiquarian collections are at present shown in the north hall and the northwest court. The collections in the north hall are confined to the wall cases and eight Kensington cases. The material in the wall cases consists for the most part of large objects which can only be shown in those cases, but that in the Kensington cases is retained in the north hall only on account of its exceptional historical interest. It includes chinaware, glassware, silverware, and miscellaneous small objects of antiquarian interest which were owned by some of the most famous personages of American History, the essential feature of this exhibit consisting of material owned by Gen. George Washington and Gen. Ulysses S. Grant. The wall cases in this hall also contain material of this character which was owned by Alexander Hamilton, Thomas Jefferson, and other American statesmen.

The installation of the northwest court as an antiquarian unit was a notable achievement during the year. The floor space now contains 8 slope top cases and 12 Kensington cases, all of which are filled with objects of antiquarian interest. Of these, one case is filled with objects lent to the Museum by the National Society of the Daughters of the American Revolution and two cases with objects lent by the National Society of the Colonial Dames of America. The chinaware and silverware bequeathed to the National Museum in 1923 by Mrs. Julian James is also here shown, as is the very large collection of china, glassware, and silverware owned by Maj. Gen. Judson Kilpatrick, United States Volunteers. In addition to general collections of such materials, this hall also contains many individual objects of this type of exceptional interest, such as a silver tureen presented to Commodore John Rodgers, United States Navy, by the city of Baltimore during the War of 1812, and an electrotype copy of the silver vase presented to William Cullen Bryant, by New York friends on the occasion of his eightieth birthday. On the north and south sides of the hall are shown the Richard Mansfield collection of historical theatrical costumes.

The arrangement of the northwest hall or costumes hall, which contains the dresses worn by the mistresses of the White House, has been improved. Two large cumbersome floor cases were removed

from the hall, as well as a rectangular wall case of antique design which formerly ran the length of the west wall. Six wall cases of standard type were installed in the space thus vacated. The cases containing the presidential gowns were then rearranged in three rows instead of two as was formerly. These changes have improved the general appearance of this hall and at the same time have afforded more floor space, thus somewhat relieving congestion, as this is one of the most popular halls in the building.

The rotunda has been completely transformed by the removal of the pool which formerly surrounded the Statue of Freedom and by the completion of the floor up to the foot of the statue. In each of the eight wall spaces between the four staircases which lead from the rotunda to the galleries a wall case 6 feet wide, 4 feet deep, and 8 feet high has been placed. In these cases have been installed military uniforms and other military material relating to the following wars: War of the Revolution, War with Mexico, the Civil War, the War with Spain, and the World War.

The west hall now contains 6 very large floor cases, 16 other floor cases, and 24 slope top cases. The six large floor cases are located at the west end of the hall and contain various types of ordnance material. The remaining cases are installed in two symmetrical rows on either side a central aisle which divides the west hall longitudinally. The floor cases nearest the wall on either side contain a series of military uniforms, including material of this type worn during the World War by the armies of the United States, the allied and the enemy countries. The slope top cases in these rows display military medals and decorations. The floor cases next the central aisle contain ordnance material and the slope top cases in these rows contain miscellaneous material. Against the north and south walls are shallow wall cases, those on the north installed with a series of American military swords showing the development in the designs of these weapons from the time of the Revolution to the present day, and those on the south side filled with a collection of European military swords. The collection of portraits of the officers and of the American Expeditionary Forces in France, painted by Joseph Cummings Chase and presented to the Government by various individuals and organizations, is hung on the walls above the wall cases.

The west gallery was also completely reinstalled. This gallery is furnished on both the north and south side with a series of seven pier cases with a wall case between each, containing a series of United States Army uniforms representing the period from the War of the Revolution to that of the World War. The floor space of a small balcony at the west end of the gallery is now occupied by a brass cannon which was brought to the United States in 1777 by the

French forces commanded by General Lafayette. This interesting relic of the Revolution, which was presented to the National Museum in 1912 by Mrs. John Cropper, now occupies a dominating position on the gallery and may be seen plainly from the main floor.

The value of the northeast court as an exhibition unit was vastly increased, and the guarding of the unique specimens of small arms installed in this space facilitated by the opening of an entrance into this court from the east north range, or power hall. This change has transformed the court from an isolated room into a main north and south thoroughfare with a central aisle leading from the east north range into the east hall.

The space assigned the division on the southeast gallery was cleared of the military collections of various types and periods and was installed as a naval unit. The collections here now include a series of models showing various types of ships used in the United States Navy from 1776 to 1876, a miscellaneous collection of relics from the wreck of the U. S. S. *Maine* which was destroyed in the harbor of Havana, Cuba, February 15, 1898, and a series of historical naval flags.

Much work was accomplished in connection with the vast collection of military material stored in the various rooms in the Arts and Industries Building and in the basement of the Smithsonian Building. An effort was made to reduce the amount of such material by returning to the War Department all objects of a highly technical character. In connection with this and with other processes relating to the military collections, Col. A. G. Hixson, United States Army, the representative of the War Department at the Museum, has contributed very material aid.

INVESTIGATION AND RESEARCH

Research by members of the staff.—Research by members of the staff of the divisions of mineral and mechanical technology is going on constantly and is concerned primarily with the history of inventions and with industrial developments. The work is undertaken primarily to provide accurate information with which to design exhibits and for inclusion in the proposed series of publications on industrial and engineering history. It was expected that manuscripts for several catalogues of the collections could be prepared this year, but increase in accessions received during the year and the unusual amount of installation took so much of the attention of the professional staff, in addition to routine work, that little progress was made this year toward the preparation of publications.

The curator of textiles continued his study of certain groups of the patent models transferred from the Patent Office, primarily for the purpose of determining which models should be permanently

retained in the collections as representative of epoch-making inventions. A number of very valuable models has been thus brought out of obscurity and data for a number of technical papers on the development of machines of universal use have been collected. The first of this series, a paper on sewing machines is in press.

The assistant curator of wood technology continued his investigations on the unclassified wood specimens in the Museum. Determination of the species by means of the wood structure alone is often difficult or impossible. In addition to differences in structure and arrangement of the woody cells, reactions to chemicals, and differences in odor and taste are used to segregate species in doubt.

Studies by the assistant curator of medicine, pertaining to the early history of pharmacy, the evolution of pharmacopoeias, the history of drugs, and flies and mosquitoes as disease carriers, was completed and exhibits on those subjects installed during the year. New investigations included a study of medicines originally sold under letters patent, and of the history of the type of medicines known as galenicals, preliminary to the arrangement of exhibits dealing with these subjects. The preparation of labels to describe the subject of hospitalization and the devising of historical sketches for the series on history of drugs consumed considerable time. Besides the two papers published on the collections, as noted in the bibliography at the end of this report, the assistant curator also prepared a paper on the Museum pharmacy collection for use at the annual meeting of the American Pharmaceutical Association in Baltimore, May 5 to 10, 1930.

The assistant curator of graphic arts continued his research upon the life and miniatures of Edward Greene Malbone.

The routine work of the division of history was so heavy during the year that but little time was available for research purposes. Investigations have been continued when possible, and much additional data have been collected by the curator, on the history of the American sword, and by the assistant curator, concerning the history of firearms.

Research of outside investigators aided by Museum material.—Dr. Th. M. Mauer, director of the Turkestan Plant Breeding Station at Tashkent, Russian Turkestan, spent some time at the Museum studying the cotton bolls and flowers, representing the principal American and Asiatic species. Attorneys representing two cordage companies, litigants in a suit involving infringement of patent rights, were furnished specimens from the old collections exhibited at the Centennial Exhibition in Philadelphia in 1876, and also photographic copies of the Museum labels and original checked list. The assistance rendered to both litigants resulted in a settlement of the suit out of court, and the saving of much expense. Cases of this

kind emphasize the value of Museum documents and records in commercial transactions of all sorts. The McCollum Exploration Co. of Washington, D. C., was furnished specimens of very fine filaments of silk and rayon to aid in the construction of optical instruments.

Specimens of two species of *Pterocarpus* were sent to Marlin Williams, of Los Angeles, for continuation of his studies of the fluorescence of their aqueous infusions. This material was to be used in an attempt to isolate in crystalline form the fluorescent substance within the wood in order to identify and classify the same. The Universal Model Aircraft Co., and the Country Club Aero Supply Co., both of Kansas City, Mo., were aided by small samples of barriguda wood, for study in connection with tests of its suitability for use in aircraft models.

Mrs. C. D. Mahaffie, Washington, D. C., carried on certain studies in the division of medicine, and made use of the illustrations of medicinal plants in preparing sketches for the Encyclopedia Britannica. Dr. J. Schuller, director of the Pharmacology Institute of the University, Koln, Germany, studied the materia medica of Oriental nations, and the history of anesthesia, and was supplied with data, illustrations, and references for use in his work. Mrs. J. A. McKnight, Clarendon, Va., studied and utilized specimens of magic medicine in the preparation of an article for publication on that subject.

The usual number of outside investigators was aided by material in the division of history. Many of these investigators visited the Museum and devoted considerable time to a study of the collections in which they were interested; in other cases materials were lent for study and display purposes.

Assistance by members of staff to other Government bureaus and private individuals.—The assistance rendered to private individuals during the year was of many sorts. The National Museum being the oldest active organization engaged in technical museum work, and its collections including many of the original and historically important objects pertaining to engineering and industrial development, a number of the members of the staffs of the newly organized industrial and engineering museums of the country visited the divisions of mineral and mechanical technology to study their collections. These individuals were particularly interested in securing accurate data for the purpose of making replicas for their institutions of original objects forming part of the National Museum collections. Of particular interest in this connection were the original electrical experimental apparatus of Joseph Henry and the unique collection of original electric lighting equipment used by Thomas A. Edison in his first incandescent electric lighting installation on land.

As an aid to the construction of an accurate reproduction of the steamboat *Phoenix* built by John Stevens in 1808, a duplicate model of this vessel was loaned to the Stevens Institute of Technology, Hoboken, N. J. Various collections in the divisions were studied by a number of patent attorneys seeking information in matters of priority of invention. Probably the largest share of assistance rendered by the divisions to individuals was through official correspondence involving the answer of a variety of questions pertaining to engineering history, the age and identity of timepieces, and current information on industrial processes and on aeronautics.

The Museum collection of brushes and of bristles and woods was made use of by Dr. H. I. Hardy, of the Bureau of Animal Industry, a member of the Government Specifications Board, in preparing specifications for bristle brushes for military service. The Textile Division of the Bureau of Foreign and Domestic Commerce, Department of Commerce, was assisted in the identification of specimens and the preparation of proper definitions of certain fabrics. Assistance was given by the curator to the Singer Sewing Machine Co., New York City, and to Wilhelm Renters, Elbing, East Prussia, in the verification of historical data to be used in publications on the history of the sewing machine. The Museum of Science and Industry, Chicago, Ill., was furnished photographs of historic textile machinery to aid in the preparation of models of important inventions. The Los Angeles Museum of History, Science and Arts was likewise supplied technical data on hand looms to assist in the correct installation of textile machines.

The National Committee on Wood Utilization was given information concerning the commercial woods of Colombia and other unusual tropical woods. Four wood hairbrush backs were identified for the office of purchase and issue of the Veterans' Bureau. Three of them were submitted for determination by Dr. J. I. Hardy, senior animal-fiber technologist of the Bureau of Animal Industry, who was cooperating in the investigation of the bristles in brushes. Assistance was rendered W. O. Robinson of Falls Church, Va., with material for use in an address before the Potomac Archers of this city, and P. J. Slowey, of Syracuse, N. Y., with wood samples to aid him in his study of commercial woods of the United States.

Special information on industrial raw materials and the identification of specimens continued to be furnished to bureaus of the Government, and to numerous individuals; also aid in planning displays, suggestions for making models, and the identification of specimens of fibers and fabrics, gums, resins, seeds, and woods. Eight lots of such material were received for identification and report.

The director of Public Buildings and Public Parks of the National Capital was aided by the assistant curator of graphic arts with advice

regarding the restoration of paintings at the White House and at the United States Capitol. Many miniatures, received for examination and report, were identified for their owners.

The usual amount of assistance has been given to other Government bureaus and private individuals by members of the staff of the division of history and 29 lots of material were received for identification and report.

Visits to other institutions on official work.—The curator and assistant curator in the divisions of mineral and mechanical technology attended the National Power Exposition held in New York City, December 2 to 7, 1929. While in New York, the curator, Carl W. Mitman, represented the Smithsonian Institution at a testimonial dinner given by the Museums of the Peaceful Arts in honor of Dr. Oskar von Miller, director of the Deutsches Museum, Munich, Germany. He also represented the Smithsonian Institution as an official delegate to the fiftieth anniversary celebration of the American Society of Mechanical Engineers, held in New York and Washington April 5-9, 1930.

DISTRIBUTION AND EXCHANGE OF SPECIMENS

During the year 6,363 specimens from the department of arts and industries and the division of history were sent out, as follows: 6,082 specimens as loans for study, or for exhibition as in the case of the traveling exhibits; 190 specimens as exchanges for which an equivalent has been or will be received; 91 specimens as gifts to educational institutions. In addition 2,888 specimens were returned to their owners during the year.

NUMBER OF SPECIMENS UNDER DEPARTMENT AND DIVISION

The total number of specimens in the department of arts and industries and the division of history on June 30, 1930, was 495,355 assigned as follows:

Mineral technology.....	4,304
Mechanical technology.....	8,345
Textiles.....	12,396
Wood technology.....	8,420
Organic chemistry.....	18,727
Foods.....	1,101
Medicine.....	15,595
Graphic arts, including photography.....	32,965
Loeb collection of chemical types.....	1,277
	103,130
History.....	392,225
	495,355

LIST OF ACCESSIONS TO THE COLLECTIONS DURING THE FISCAL YEAR 1929-30

[EXCEPT WHEN OTHERWISE INDICATED THE SPECIMENS WERE PRESENTED OR WERE
TRANSFERRED BY BUREAUS OF THE GOVERNMENT IN ACCORDANCE WITH LAW]

ABBOTT, Dr. WILLIAM, North East, Md.: Approximately 2,676, archeological specimens, 5 lots of human skeletal material, and small lots of mammal, bird, and fish bones, shells, and crab mandibles, collected in Santo Domingo by Herbert W. Krieger during the winter of 1928-29; also important anthropological and biological material from various sites in the Dominican Republic collected by Mr. Krieger in 1930 (104303; 108291).

ABRAMS, Prof. LeROY. (See under Stanford University, Department of Botany.)

ACADEMY OF NATURAL SCIENCES, Philadelphia, Pa.: Three skeletons of reddish egret from Texas; 7 specimens of minerals (107352; 110368). Exchange.

ACHESON OILDAG CO., New York City: Collection of articles intimately associated with the life and work of Edward Goodrich Acheson, inventor of carborundum, artificial graphite, and deflocculated graphite (108512).

AGRICULTURAL EXPERIMENT STATION, Kingston, R. I. (through Mr. A. E. Stene): 12 insects collected in Rhode Island (109425).

AGRICULTURE, DEPARTMENT OF:

Bureau of Animal Industry: 3 specimens of mollusks from Siskiyou County, Calif. (106615); (through Dr. E. W. Price) 7 specimens of fresh-water shells from Nevada, collected by D. Sinitsin; and 16 specimens, 1 species, of fresh-water mollusks from California (106980; 107138).

AGRICULTURE, DEPARTMENT OF—Continued.

Bureau of Biological Survey: 10 isopods and 1 amphipod taken from bird stomachs (101339); turtle from the Hawaiian Islands (104826); 3 isopods collected at Branchville, Md., 1 crab from Everglades, Fla., and an isopod from Virginia (105866); 72 plants collected in Alaska by William B. Miller (106609); 14 crustaceans, 106 fishes, 6 reptiles, 24 amphibians, and approximately 16 birds (106716); 28 amphibians and reptiles from Kentucky and Arizona (108158); (through Vernon Bailey) 2 fragmentary plants from Kentucky, and a specimen of moss from Arizona (108649, 110396); 25 specimens of eider from Maine (108917); plant collected in Arizona by Vernon Bailey (109146); 7 skeletons representing 2 species of ducks from Avery Island, La. (109217); (through Dr. K. Jordan, Tring, Herts, England) 97 slides of fleas (109769); 5 skeletons of birds; trachea of a blue grouse, set of eggs of a bird (Everglade kite), and 4 jars of anatomical specimens—parts of birds (110132); 651 mammals transferred from the bureau and entered on the Museum catalogue between July 1, 1929, and June 30, 1930 (110557). (See also under Kentucky Geological Survey and James P. Melzer.)

AGRICULTURE, DEPT. OF—Contd.

Bureau of Chemistry and Soils,

Leather and Paper Laboratory: 24 transparencies 5 by 7 inches mounted in passe partout style showing grain of leathers from different animal hides or skins, magnified five times (108825).

Bureau of Entomology: 2 isopods and a land shell from Cuba, collected by H. K. Plant (106726); 230 dry specimens of isopods, 30 vials of insects, and a collection of mollusks, accumulated by the late Dr. F. H. Chittenden in connection with his work for the Bureau of Entomology (107131); 7 slugs and eggs of another slug from Newport, R. I. (107355); 2 land planarians (107356); (through Dr. Harold Morrison) 2 slugs from Mullins, S. C. (109177); 3 isopods from Porto Rico (109092); gipsy moth laboratory, Melrose Highlands, Mass. (through Mr. Wendell F. Sellers) 59 flies, representing 8 established species and 8 species in manuscript (109770); also from the same laboratory, 8 flies representing 2 species, 1 of which is new (109849); 10,195 miscellaneous insects retained out of material received by the specialists in the division of insects, through the Bureau of Entomology, for identification during the fiscal year 1929-30 (110432).

Forest Service (through W. A. Dayton): Type specimen of plant from Oregon (106911); 3,006 plants (107722, 109220); Alaska District, Juneau Alaska, collection of invertebrate fossils collected by M. L. Merritt along Glacier Highway, Alaska (107120).

Bureau of Plant Industry (through Dr. S. F. Blake): 60 plants; 2 stem sections of woody plants; plant; 9 plants collected in

AGRICULTURE, DEPT. OF—Contd.

Bureau of Plant Industry—Contd.

Venezuela by G. H. H. Tate; 5 specimens of ferns from Vermont; 9 photographs and 12 fragmentary specimens of plants; plant from Bermuda (106226; 106770; 106745; 107896; 109498; 109604; 110410); (through Dr. T. H. Kearney) 14 plants from the western United States; 560 plants from Arizona and 10 specimens of ferns; (106270; 107765; 108330; 108422; 108331; 108631; 109114; 108385); 13 plants from the southwestern United States (108878); 17 plants from Texas (110398); collection of 383 ethnological specimens from Papua, New Guinea, and Dutch New Guinea, secured during the summer of 1928 by Dr. E. W. Brandes (106509); (through L. H. Dewey) 4 plants (106593, 107856); plant from Peru (109904); specimen of lava from Mount Fuji, Japan (106694); (through Mrs. Agnes Chase); plant from China (106947); specimen of a cultivated plant (107100); 15 plants collected in Japan and Hawaii by Dr. Frederick V. Coville (106983); (through Doctor Coville) plant from Virginia; 2 plants from New York; 24 plants collected in Colorado by Doctor Coville; 27 plants collected in Montana by J. E. Kirkwood; orchid from Maryland; 37 plants and 2 photographs of plants; 25 plants from Florida; plant from California (107001; 107012; 107101; 107250; 107350; 108312; 109221; 109845; 110105); (through Dr. C. R. Ball) 3 specimens of willows (107013); (through G. F. Gravatt) 20 wood specimens collected in Japan by Prof. R. K. Beattie of the office of forest pathology (107362); (through Prof. A. S. Hitchcock) plant

AGRICULTURE, DEPT. OF—Contd.

Bureau of Plant Industry—Contd. from New Jersey; plant; 3 specimens of plants from the Malay Peninsula; 3 plants from China (108040; 108149; 108678; 110312); (through Dr. C. L. Shear) 4 specimens of algae from Europe (108140); 4 plants (108890); (through W. W. Eggleston) 717 plants from various parts of the United States (109222) 11 specimens of grasses (110369).

Plant Quarantine and Control Administration:

Crab taken on bananas from Jamaica at Baltimore, Md. (103768); 2 isopods taken at Philadelphia, from yams from Jamaica (105861); 23 isopods intercepted at Honolulu (105411); 2 isopods taken from soil around plants from Woodland, Calif., and intercepted at Honolulu, Hawaii (105711); snail from the Philippines and an isopod from Italy, also 2 isopods from debris of orchid plants from the Philippines, intercepted at Honolulu Hawaii, and a land snail from France (106108, 106891); 11 land mollusks and 5 isopods from Mesopotamia (106109); crab and a snake found on bananas from Cuba, intercepted at Baltimore, Md. (106149, 107749); land shell from France, isopod in soil of plants from Fiji and an isopod in soil of chives from San Francisco, Calif. (106419); collection of plants, insects, marine invertebrates, mollusks parasitic worms, fishes, and reptiles, from the estate of J. D. Mitchell (106489); 9 isopods from India (106530); isopod (106699); 2 isopods from Japan and a slug from Holland (107228); isopod from China, 3 isopods from French Morocco, and 1 from the Philippines; also specimen of a slug from Denmark (107855);

AGRICULTURE, DEPT. OF—Contd.

Plant Quarantine and Control Administration—Continued.

isopod on banana from Honduras and a slug from Canada (108123); gecko taken on bananas from Honduras (108135); isopod from Spain, 14 isopods from Larvas Minas, Brazil, and a land shell from Bermuda (108679); 4 land shells from Bermuda and 3 isopods from Hawaii (109045); land shell from France and an isopod from England (109075); 3 shells from Italy (109176); 2 isopods from Arizona and Mexico, and a slug from Ireland (109558); 5 mollusks from Bermuda and Spain (109756); (through Paul M. Howard, San Diego, Calif.) 2 adult and several young snails (109890); 20 specimens, 7, species, of land and marine shells from the West Indies, Europe, and the United States, and 7 isopods from the Philippines, Germany, West Indies and England (110084); 2 isopods from Singapore, Straits Settlements (110114).

Weather Bureau: Box kite developed by the United States Weather Bureau for meteorological use in sounding the upper air (109633).

AGRICULTURE, DEPARTMENT OF, Pretoria, Union of South Africa: 100 South African plants (105195); (through E. Percy Phillips) 100 plants from South Africa (109914. Exchange.

AHMET MOUHTAR BEY. (See under Turkey, Government of.)

ALASKA AGRICULTURAL COLLEGE, College, Alaska: 10 insects and 4 nematodes from Alaska (108453).

ALBERTA, UNIVERSITY OF, Department of Zoology, Edmonton, Alberta, Canada (through Dr. William Rowan): 6 specimens of giant hydra (106441, exchange).

- ALEXANDER, Dr. CHARLES L., Charlotte, N. C.: Bird-shaped object found near Mecklinburg, N. C. (107613).
- ALEXANDER, Dr. C. P., Amherst, Mass.: Approximately 400 specimens of flies, mostly of the family Tipulidae, from the Philippine Islands (106604).
- ALFARO, Señor ANASTASIO, San José, Costa Rica, Central America: Immature nematodes and 11 fishes collected in waters of western Costa Rica (106752).
- ALLAN, Miss EDITH H., Elora, Ontario, Canada: 4 Filipino weapons with scabbards and 3 arrows (106930).
- ALLEN, Dr. CHARLES F. H., Milford, Mass.: 55 specimens of chemicals for the Loeb Collection of chemical types (110640, 110641).
- ALLEN, Miss ELIZABETH, Burlington, Vt.: Original map made in connection with survey of boundary between Canada and the United States in 1818, under the direction of John Johnson; also original hand-written record entitled "Courses and Distances of the river St. John From the Mouth of the Grand River to the Boundary Line" (104780). Loan.
- ALLEN, Mrs. HAROLD, Washington, D. C.: A "Gentleman's accelerator" tricycle velocipede, patented in 1875 (109223).
- ALLEN, Dr. H. W., Moorestown, N. J.: 2 specimens of flies (109889).
- ALLEN, Mrs. LAURA M., Rochester, N. Y.: 7 samples of hand weaving and 2 photographs (110325).
- AMATEIS, EDMOND, New York City: 2 specimens of fossiliferous limestone from north of Paris, France (107678).
- AMERICAN BEMBERG CORPORATION, New York City: Series of 26 specimens, photographs and charts, illustrating the manufacture of a synthetic fiber by the cuprammonium process (110183).
- AMERICAN HOSPITAL ASSOCIATION, Chicago, Ill. (through Richard P. Borden, Fall River, Mass.): Five colored transparencies illustrating the subject of hospitalization (109087).
- AMERICAN INSTITUTE OF GRAPHIC ARTS, New York City: A collection of 50 prints entitled "The Fifty Prints of the Year," for special exhibition during the month of August, 1929 (106493). Loan.
- AMERICAN MUSEUM OF NATURAL HISTORY, New York City: 2 skins with skulls of mammals; 2 beetles; skin of wattled crane from South Africa (106986; 106998; 109545, exchange); (through C. H. Curran) 28 flies (109519).
- AMERICAN NUMISMATIC ASSOCIATION, New York City: 12 coins of Belgian Congo, Bolivia, Cameroun, Costa Rica, Grand Liban, Guatemala, and Sarawak; 2 German silver coins struck in 1929 and a French bronze coin struck for Cameroun, 1926; 2 German silver coins struck in 1929 in commemoration of the tenth anniversary of the adoption of the German constitution; coins of Finland, Luxemburg, and Poland, struck in 1928-29; coins of Czechoslovakia, Greece, and Poland, struck in 1925-1928; gold condor of Ecuador, struck in 1928, and silver 2½ gulden of the Netherlands struck in 1929; 4 silver coins as follows: dollar, half-dollar, 20 cents, and 10 cents issued by the Republic of Mongolia in 1926; coins of Czechoslovakia, Lundy Island, and Luxemburg (4 specimens), and a medal issued by the Medallie Art Co. (106079; 106416; 107084; 107868; 108316; 108655; 108870; 109744). Loan.
- AMERICAN PROPELLER COMPANY, THE, Baltimore, Md.: 21 aircraft propellers produced by the donor between 1909 and 1930 (108777).
- AMERICAN RAILWAY ASSOCIATION, SIGNAL SECTION. (See under Illinois Central Railroad Co.)

- AMERICAN SCHOOL OF PREHISTORIC RESEARCH IN EUROPE, New Haven, Conn. (through Dr. George Grant MacCurdy, director): 6 flint artifacts from the Magdalenian level of the Rock Shelter of the La Magdalaine, Dordogne, France (108178).
- AMERICAN SOCIETY FOR THE CONTROL OF CANCER, THE, New York City: 21 educational and statistical charts dealing with the subject of cancer (106280); exhibit of models and statistical information on the subject of cancer (108407).
- ANACONDA COPPER MINING COMPANY, Butte, Mont.: 6 large specimens of typical Butte ores—Rhodochrosite, Sphalerite, Enargite, Bor-nite, Covellite, and Chalcocite (108277).
- ANDERSON, Prof. J. C. (through Russell A. Conn, Washington, D. C.): A despatch rider's bicycle of special design (107860).
- ANDERSON, Miss REGINA, Philadelphia, Pa.: Braille slate first used in 1877 in Stockholm (109870).
- ANDERSON, W. W., Washington, D. C.: 19 ethnological specimens from the Sioux Indians (109841).
- ANDREWS, C. L., Kotzebue, Alaska: An Eskimo skull from Kotzebue (108675).
- APOLLINAIRE-MARIE, Brother, Bogota, Colombia: 40 plants from Colombia (110221).
- ARCHÆOLOGICAL SOCIETY OF WASHINGTON, Washington, D. C.: 419 archeological specimens from Abri les Merveilles at Castel Merle, near Sergeac, France, secured by Dr. George Grant MacCurdy's 1929 School of Prehistoric Research (107359); 44 archeological specimens collected by Count Byron de Prorok from the Libyan and Saharan Deserts (107721). Deposit.
- ARKANSAS GEOLOGICAL SURVEY, Little Rock, Ark. (through Merle C. Israelsky, Shreveport, La.): Types of 26 species of Upper Cretaceous ostracods from Arkansas (106238).
- ARMER, Miss ANNIE A., Austin, Tex.: 125 plants from Texas (106503).
- ARMITAGE, H. M. (See under Horticultural Commissioner, Los Angeles, Calif.)
- ARMOUR & CO., Chicago, Ill.: 15 specimens of medicinal preparations made from animal products (106774).
- ASCUNCION, PARAGUAY, JARDIN BOTANICO: 140 plants (108109). Exchange.
- ASHLEY, THOMAS F., Oakland, Calif.: Specimens of Chinese shavings of Bandoline wood "Pau hoi" (110139).
- ASSOCIATION OF EDISON ILLUMINATING COS., New York City: Glass plaque of the head of Thomas A. Edison (107351).
- ATWATER, JANE and LEIGH, Palo Verde Rancho, Monte Cristi, Dominican Republic: 29 butterflies collected by the donors on Palo Verde Rancho (109803).
- AUGHILTREE, J. W. New York City: Binocular camera (106258).
- AUSTRALIAN MUSEUM, Sydney, New South Wales, Australia: 13 specimens of corals (110363).
- AVERY, Miss MYRA H., Poughkeepsie, N. Y.: Oil painting of a Japanese magnolia by the first American Consul to Japan, and a modeled landscape picture of a scene in the East Indies (106964); bronze plaque bearing a printed copy of the Declaration of Independence (107009).
- BABCOCK & WILCOX CO., New York City: Three large scale models of water-tube boilers; 5 models of boiler headers; an oil burner; illuminated drawings of early engines and boiler types, and a collection of memorabilia of Stephen Wilcox and George H. Babcock (110403).
- BAILEY, Dr. L. H., Ithaca, N. Y.: 22 specimens of ferns from Cuba and a plant (106285, 106689).
- BAILEY, VERNON. (See under Agriculture, Department of, Bureau of Biological Survey.)

- BAIN, ROBERT E. M., St. Louis, Mo.: Model of steam hoisting engine (107769).
- BAIRD COMPANY (INC.), JAMES, Washington, D. C.: 5 slabs of sandstone and 4 samples of marble used in the construction of the Internal Revenue Building (107024, 108421).
- BAKELITE CORPORATION, New York City: 12 miscellaneous articles made from the phenol resinoid Bakelite (110401).
- BAKER, Dr. C. F. (through Dr. R. C. McGregor, Manila, P. I.): 26 land shells from the Philippine Islands (109191).
- BAKER, Dr. F. H., Richmond, Victoria, Australia: 25 insects from Australia (105948, 107398, 109495).
- BALL, Dr. C. R. (See under Department of Agriculture, Bureau of Plant Industry.)
- BALL, Prof. O. M., College Station, Tex.: Collection of fossil plants from Bastrop County, Tex. (109534).
- BALL, W. HOWARD, Washington, D. C.: Skull of a domestic pig and trunk skeleton of a black vulture from Florida (106272, 106602); long-billed marsh wren (106641); 2 specimens of western sandpiper (106915); semipalmated plover and 3 other birds (106973); 3 swallows and 5 eggs of a long-billed marsh wren (107104); 5 birds, including a dowitcher from Hains Point, D. C. (107223); specimen of a bird (knot) from New Jersey (107233); short-billed marsh wren from Plum Point, Va. (107773); 2 hermit thrushes (109413); 4 amphipods and 1 crayfish collected at Takoma Park (109407); crayfish and an amphipod from Suitland Bog, Prince Georges County, Md. (109554); 3 birds from Maryland (110158); 4 bird skins from Maryland (110408); woodchuck from Virginia (110342).
- BANDEIRA, Miss MARIA C. (See under Jardin Botânico, Rio de Janeiro, Brazil.)
- BARBER, H. S., Washington, D. C.: Specimen of mollusk from Stonyman's Mountain, Va. (106279). (See also under W. S. Blatchley, William T. Davis, Dr. R. Jeannel, and C. W. Leng.)
- BARNELEY, EDWARD R., Newton, Pa.: 5 specimens of brachiopods from Mifflin County, Pa., being types of a new species (106649).
- BARNES, Dr. R., Lacon, Ill.: 13 specimens of moths (105841).
- BARTLETT, Capt. R. A., New York City: Collection of marine zoological specimens made by the donor in 1929 off the coast of Labrador, comprising crustaceans, dredging and townet samples, echinoderms, fishes, and mollusks (106491).
- BARTRAM, EDWIN B., Bushkill, Pa.: 38 specimens of mosses from New Zealand (107221). Exchange.
- PARTSCH, Dr. PAUL, Washington, D. C.: 15 specimens, 3 species, of mollusks from Camp Roosevelt, Chesapeake Bay, Md. (107608). (See also under Walter Rathbone Bacon scholarship.)
- BAYERISCHE STAATSSAMMLUNG FÜR PALAEONTOLOGIE UND HISTORISCHE GEOLOGIE, Munich, Germany: Approximately 1,500 specimens of Cretaceous bryozoa from Rugen, Germany (108430).
- BEAN, Mrs. CAROLINE VAN R., Washington, D. C.: 6 ethnological specimens from Alaska, formerly the property of the late Dr. Tarleton H. Bean (108342).
- BECKMAN, CHARLES, Arlington, Oreg.: Archeological material from Texas and Washington, and a United States Army button from the Little Big Horn, Mont. (109052); prehistoric artifacts from sites in Texas and Washington (109858).
- BECKWITH, FRANK, Delta, Utah: Approximately 150 specimens of trilobites from the Middle Cambrian of Utah (110177).

- BEHRE**, Miss **ELLINOR H.** (See under Louisiana State University, Department of Zoology, Baton Rouge, La.)
- BELL TELEPHONE LABORATORIES**, New York City: Framed layout showing the characteristics and uses of the new alloys permalloy and perminvar, and seven specimens of alloys, as follows: Nickel-iron alloy (permalloy), nickel-cobalt-iron alloy (perminvar), lead-antimony alloy (cable sheath), platinum-nickel alloy (filament), platinum-cobalt alloy (filament), gold-silver-platinum alloy (No. 1 contact metal) and gold-silver alloy (No. 3 contact metal) (108024).
- BELTRANI**, **VITO**, Palermo, Italy: 69 specimens, representing 22 species, of mollusks from Sicily (107572).
- BENEDICT**, **JAMES E.**, jr., Silver Spring, Md.: 20 specimens, 2 species, of fresh-water shells from Virginia and West Virginia (106277); 4 isopods collected by the donor at Tall Timbers, Md. (107742); plant from Maryland (107857); 2 specimens (counterparts) of a fossil beetle from the Miocene deposits of the District of Columbia (108284); lizard, salamander, vial of crabs, and 30 insects from the southern United States (109927) young crow (110168).
- BENN**, **JAMES H.**, Washington, D. C.: Sharp-shinned hawk from Maryland, and a log perch from the Virginia side of the Potomac River at Chain Bridge (108645, 109717).
- BERGER**, **Dr. E. W.** (See under Florida, State Plant Board of.)
- BERKELEY**, Miss **ALFREDA**, Toronto, Ontario, Canada: 6 shrimps carrying 7 isopod parasites (108636).
- BERNHEIMER**, **CHARLES L.**, New York City: Specimen of silicified wood from near the mouth of Red Canyon, Utah (109571).
- BERRY**, **Prof. E. W.** (See under Prof. Willard Berry, William L. Jones, and Maryland Geological Survey.)
- BERRY**, **Prof. WILLARD**, Columbus, Ohio (through Prof. E. W. Berry): 12 specimens of Upper Cretaceous ostracods from McNairy County, Tenn., described in a manuscript submitted for publication in the Proceedings of the United States National Museum (109565).
- BERTÉ (INC.)**, **JEAN**, New York City: 6 examples of water-color printing (108714).
- BETSCH**, **CHRIS**, Russian Mission, Alaska: 2 large stone axes, 2 smaller stone axes, a stone knife (knife and handle in one piece), all from the general vicinity of Russian Mission (107116).
- BIDDLE**, **Commander CLEMENT**, M. C., United States Navy, Irvington, Va.: Sponge and a sketch of a jelly-like coelenterate (107394).
- BING**, **JOSEPH M.** (See under Prof. Rudolf Koppitz.)
- BIRCHFIELD**, **C. J.**, Chicago, Ill.: 3 earthenware vessels said to have come from an old ruin in Canyon de Chelly, northeastern Arizona (109559).
- BIRD**, **Miss LOIS GOULD**, Norman, Okla.: Fern from Oklahoma (107404).
- BIRDSALL**, **EDWARD T.**, Hackensack, N. J.: Early automobile generator from a Deauville automobile of about 1902 (106427).
- BIRDSALL**, **GEORGE A.**, Washington, D. C.: An early American ox yoke used during the fifties by Edward N. Birdsall, one of the first settlers near Sterling, Ill. (106748).
- BIRNN**, **Lieut. R.**, United States Army, Washington, D. C.: 5 ethnological specimens from the San Blas coast of Panama (108558).
- BISHOP**, **Mrs. FREDERICK H.**, Wollaston Heights, Mass.: Sample book of cotton prints with recipes for dyeing and printing, used about 1827 by Samuel Dalrymple, grandfather of the donor (109799).
- BLACK**, **Dr. DAVIDSON**, Peiping, China: 2 casts of a tooth of the "Sinanthropus" (108440).

- BLACKFORD, CHARLES MINOR, 3d, Washington, D. C.: Model of Formosan fishing catamaran, typical of the craft used by native fishermen at Takao, Formosa (107410).
- BLACKISTON, A. H., New York City: Bronze figurine of Osiris (108354). Loan.
- BLAISDELL, Dr. FRANK E., San Francisco, Calif. 14 beetles (108314, 109620).
- BLAKE, Mrs. DORIS H. (See under H. P. Loding.)
- BLAKE, Prof. IRVING H. (See under Nebraska, University of, Lincoln, Nebraska.)
- BLAKE, Dr. S. F., Washington, D. C.: 90 plants from Europe (109235). (See also under Agriculture, Department of, Bureau of Plant Industry.)
- BLATCHLEY, W. S., Indianapolis, Ind. (through H. S. Barber): 2 beetles, 1 a paratype, and 1 specimen from Rio de Janeiro (107880).
- BLOOM, Mrs. SOL. (See under Mrs. Calvin Coolidge.)
- BLY, Mrs. CHARLES, Kingman, Ariz.: 2 cactus plants from Arizona (109158).
- BLYSTONE, E. L., Ardora, Pa.: 2 grains of rice on which appears microscopic writing in black ink (107744).
- BOALO, D. C., Washington, D. C.: 4 commercial types of silk cocoons produced at Sovere, Provencia di Bergamo, Italy, and collected by Amerigo Boala, brother of the donor (106923).
- BOATWRIGHT, J. A., Thomson, Ga.: Trilobite from the Devonian rocks of Indiana (106229).
- BODEKER, FRIEDR., Cologne, Germany: 17 photographs of living Cactaceae (110314).
- BOGUSCH, E. R., Urbana, Ill.: Plant from Texas (107843).
- BONAVICH, JOHN J., Quakake, Pa.: 2 insects (107770).
- BONNOT, Dr. Paul, San Francisco, Calif.: 6 crabs and 2 isopods (109583). (See also under California Division of Fish and Game.)
- BORDEN, JOHN, Chicago, Ill.: 2 fleshing knives and a harpoon ice pick from Coronation Gulf (108390).
- BORDEN, RICHARD P. (See under American Hospital Association.)
- BOTANIC GARDENS, Singapore, Straits Settlements: 17 plants (107844). Exchange.
- BOTANIC INSTITUTE OF CHARLES UNIVERSITY, Prague, Czechoslovakia (through Dr. Karel Domin): 100 plants from Czechoslovakia (110411). Exchange.
- BOTANIC MUSEUM AND HERBARIUM, Botanic Gardens, Brisbane, Australia (through Dr. C. T. White, Government botanist): 210 plants from Australia (106500). Exchange.
- BOTANICAL GARDEN AND MUSEUM, UNIVERSITY OF CLUJ, Cluj, Rumania: 200 specimens of Rumanian plants (Florae Roumaniae Exsiccatae, Centuries 8, 9) (107638). Exchange.
- BOTANISCHES MUSEUM, Berlin-Dahlem, Germany: 4 photographs and 2 fragmentary specimens of plants; also 275 plants from Samoa (108168, 109789). Exchange.
- BOTTIMER, L. J., Haddon Heights, N. J.: 4 plants from Florida (109398).
- BOVING, Dr. A. G. (See under Dr. Unnio Saalas.)
- BOX, HAROLD E., Tucuman, Argentina: 294 miscellaneous insects, representing approximately 180 species, of different orders, collected in British Guiana, Santo Domingo, and Porto Rico (88781). (See also under Schreiber, Rudolf.)
- BOYCE, A. M. (See under California, University of.)
- BOYD, F. Y., Camden, Ala.: Sample of green sand from Alabama (107584).
- BRADLEY, Dr. J. C. (See under Cornell University, Bureau of Entomology, Ithaca, N. Y.)
- BRADY, J. F., Mesa, Ariz.: A 63-gram fragment of a meteorite from near Flagstaff, Ariz. (106282).

BRANDES, Dr. E. W., Washington, D. C.: Egg of Sclater's cassowary from Papua (109572).

BRANFORD, WALTER A., Ewell, Md.: Beetle collected at Crisfield, Md. (106600).

BREYERE, E. J., Washington, D. C.: King snake from North Kensington, Md. (107766).

BRIDWELL, J. C., Washington, D. C.: 17 flies reared from plant galls by the donor at Glencarlyn, Va. (106775); 11 specimens, 1 species, of fresh-water shells from Four Mile Run, Va. (109143); 6 shells from Padre Island (Point Isabel), Tex. (109412); living snail from Cuba (110435). (See also under S. W. Frost, and Prof. F. Silvestri.)

BRIGHAM YOUNG UNIVERSITY, Provo, Utah (through Prof. V. M. Tanner): Specimen of fly (109779).

BRIMLEY, C. S., Raleigh, N. C.: 2 types and 2 paratypes of turtles (108030).

BRINKMAN, A. H., Craigmyle, Alberta, Canada: 58 plants from Alberta, Canada (107898).

BRITISH GOVERNMENT:

British Museum (Natural History), London, England: Paratype of a crustacean from Sahul bank, south of Timor; 1,712 specimens of flies, representing 564 species, 80 of which are cotypes and 43 paratypes, as well as 33 genotypes; 2 specimens of the mineral bismutotantalite from Uganda; (through Miss Isabella Gordon) 4 crabs from Tanganyika; specimen of smithsonite from Broken Hill, northern Rhodesia (105279; 105689; 107653; 108261; 108835; exchange); crinoid from 1,325 fathoms off the coast of Chile (110124).

Imperial Bureau of Entomology, London, England (through D. S. Wilkinson); 39 determined parasitic wasps, representing 22 species, including 14 cotypes (106908, exchange); 29 named

BRITISH GOVERNMENT—Contd.

Imperial Bureau of Entomology—Continued.

specimens of parasitic Hymenoptera, representing 14 species, including 13 cotypes (109142, exchange); (through Guy A. K. Marshall, Director) fly puparium from Barbados (109920).

Imperial Forestry Institute, Oxford, England (through J. Burt Davy): 27 plants from Africa; also 38 specimens of tropical trees and shrubs (106370, 109526). Exchange.

BROOKLYN MUSEUM, Brooklyn, N. Y.: Approximately 37,100 specimens of miscellaneous insects, including types of 477 species (107577, permanent deposit).

BROOKLYN TRUST CO., Brooklyn, N. Y. (See under Chester Sumner Kingman.)

BROOKS, Maj. ALLAN, Okanagan Landing, British Columbia, Canada. (See under J. Eugene Law.)

BROOKS, MAURICE, French Creek, W. Va.: Plant from West Virginia (106924).

BROWN, EDWARD J., Coconut Grove, Fla.: 39 reptiles and amphibians, 1 isopod, 1 shrimp, 8 crabs, a stomatopod, 28 fishes, 1 sea urchin, specimen of alga, 22 specimens, 1 species, of nudibranch mollusk, from Florida (109921); 6 bird skins from Florida and California (110407).

BROWN, Miss MARY PERRY, Washington, D. C. (through Col. John Otto Johnson): Sioux Indian beaded pipe pouch (108723).

BROWN, Dr. R. W., and E. NELSON, Washington, D. C.: 2 Miocene shells from Yorktown, Va. (110437).

BROWN UNIVERSITY, Providence, R. I.: 6 bird skins from various localities (108646).

BROWNING, Mrs. ROBERT BARRETT, Washington, D. C.: 2 Trajan columns of red porphyry (108177).

BRUNER, S. C. (See under Cuba, Secretaria de Agricultura, Comercio y Trabajo, Habana, Cuba.)

- BUCHANAN, L. L., Washington, D. C.: 5,000 beetles, partly named and mostly North American (106656).
- BUCHER, WILLIAM F., Washington, D. C.: Samples of 6 species of woods (110443).
- BUCHTIEN, Dr. OTTO, La Paz, Bolivia: 100 African plants (108270).
- BUFFALO CAMERA CLUB, Buffalo, N. Y.: 103 pictorial photographs for special exhibition during the month of April, 1930 (109778). Loan.
- BUNCH, F. A., Las Cruces, N. Mex.: 2 living cacti (110335).
- BURKE, Mrs. CLARA, Fort Yukon, Alaska: Fish net made in 1907 by the Eskimo of the upper Koyukuk River (106296).
- BURKE, Dr. GRAFTON, Fort Yukon, Alaska: Skull of an adolescent girl from old Nulato (107118).
- BURKENROAD, M. D., New Orleans, La.: 17 specimens, 5 species, of marine mollusks from Louisiana (109856).
- BURR, C. B., Ansonia, Conn.: 8 photographic plates of electrical apparatus made by William Wallace (109500).
- BURR, GEORGE E., Phoenix, Ariz.: 60 etchings for special exhibition from December 30, 1929, to January 25, 1930 (108282). Loan.
- BURROUGHS WELCOME & CO., (Inc.), New York City: Collection of aviation photographs illustrating the world flight and 1 print of the first air mail flight (109871).
- BURT, GEORGE R. (See under Franklin Machine Co.)
- BUSHNELL, D. I., University, Va.: String of shell beads with incised shell pendant, collected by the donor's father from a stone grave in Christian County, Ky. (108166).
- BUTLER, Dr. T. M., Trout, La.: Specimen of silvery lamprey eel (108405).
- BUTTGENBACH, H., Brussels, Belgium: Examples of 3 rare minerals representing type material described by the sender (107347). Exchange.
- BUXTON, Prof. P. A. (See under London School of Hygiene and Tropical Medicine, London, England.)
- BYINGTON, E. S., De Queen, Ark.: Stone ax found on the surface near the Cossato River in Sevier County, Ark. (108700.)
- CALIFORNIA ACADEMY OF SCIENCES, San Francisco, Calif.: 2 skins of the Bindloe Island mocking bird, new to the Museum collections (108299); (through Miss Alice Eastwood) 3 specimens of ferns from Arizona; plant from California; plant (109574, 110301, 110384). Exchange.
- CALIFORNIA DIVISION OF FISH AND GAME, San Francisco, Calif. (through Dr. Paul Bonnot): 120 specimens of marine mollusks and 3 barnacles taken in California on seed oysters from Japan (109590).
- CALIFORNIA, UNIVERSITY OF:
Department of Botany: (Through Dr. E. D. Merrill); 42 plants, chiefly from Borneo, 91 plants from Java, and 91 specimens of ferns from western China (106228, 106357, 108139); 477 plants (107723); 1,567 plants, chiefly from the Philippine Islands, Sumatra, and New Caledonia (107731); 46 specimens of mosses (108151); 137 specimens of ferns from Fiji, collected by H. E. Parks (108879); (through Dr. E. B. Copeland) 265 plants, 30 specimens of fungi, 67 plants from California, collected by Mrs. Ynes Mexía, 336 plants from the western United States (108898, 108920, 109134, 109605); (through Prof. W. A. Setchell) 184 plants (109595); 940 plants (algae) (109790); (through Prof. N. L. Gardner) 103 plants, chiefly ferns, from the southwestern United States, 262 plants chiefly from the western United States (110069, 110159). Exchange.

CALIFORNIA, UNIVERSITY OF—
Continued.

Citrus Experiment Station, Riverside, Calif. (through A. M. Boyce): 24 specimens of flies from walnuts in California (107366).

CAMPBELL, Dr. J. W., Westland, New Zealand: 1,422 specimens of miscellaneous insects, from New Zealand (107881, 108591, 110433).

CAMPBELL, Miss MARION I., Manhattan, Kans.: 4 centipedes (106688).

CAMPOS R, Prof. F., Guayaquil, Ecuador: 37 flies; 15 skins of humming birds from Banos, east Ecuador (107227, 109776); 108 flies from Ecuador (107874).

CANADIAN GOVERNMENT:

Biological Board of Canada, Toronto, Canada: 14 amphipods (109494).

Department of Agriculture, Entomological Branch, Ottawa, Canada: 4 flies, paratypes (109786);

Entomological branch, Kamloops, British Columbia (through Eric Hearle) fly and pupa (110382).

Department of Mines, Geological Survey of Canada, Ottawa, Canada: Specimen of fossil coral from the Silurian of Manitoba (109232). Exchange.

CANNON, HERBERT D., Whiteriver, Ariz.: Grooved stone maul of lava from Bonito ruins about 20 miles east of Whiteriver (109192); small lot of potsherds from Montana (110405).

CANU, Dr. FERDINAND, Versailles, France: Several thousand specimens of Tertiary (Bartonian) shells from Ezanville, France (108686).

CAREY, Capt. CHARLES, Washington, D. C.: An early spiral screw driver (109063).

CARIBBEAN PETROLEUM CO., New York City (through Dr. Carlotta J. Maury); Fossil crab from Venezuela (106051).

CARNEGIE INSTITUTE OF TECHNOLOGY, department of printing, Pittsburgh, Pa.: Book entitled "The

CARNEGIE INSTITUTE OF TECHNOLOGY—Continued.

Influence of Fine Printing," by Arthur W. Cole; an example of fine printing (109424).

CARNEGIE INSTITUTION OF WASHINGTON, Washington, D. C. (through W. M. Gilbert); 574 plants from Europe (106660); fossil zeuglodonts, mollusks, echinoderms, etc., and recent reptiles and insects collected by Messrs. Remington Kellogg and Norman Boss in Choctaw County, Ala., and Clarke County, Miss. (107840); (through Dr. David White) fossil plants from the Hermit Shale, Grand Canyon, Ariz., collected and described by Doctor White (108908).

Department of Research in Terrestrial Magnetism: 15 birds, 1 mammal, 1 echinoderm, and 3 fishes, collected by Capt. J. P. Ault (107427).

CARNEGIE MUSEUM, Pittsburgh, Pa.: 87 bird skins from South America, including 44 forms new to the National Museum collections (108918); (through Prof. O. E. Jennings, curator of botany) 92 plants from British Guiana (110068). Exchange.

CAROLINA MINERAL CO., Spruce Pine, N. C.: Specimen of columbite and one of uranophane with gumite from the Pink mine, Spruce Pine, North Carolina (110123).

CARR, EDWIN, Shanghai, China: Chinese bill for 1,000 cash issued during the latter part of the Fourteenth century; 3 photographs containing data concerning the bill and a photograph of the city of Peiping (109094).

CARR, F. S., Medicine Hat, Alberta, Canada: 5 beetles, including 1 paratype (106730).

CARTER, Lieut. S. O., United States Army, Los Angeles, Calif.: 2 plaques and a ewer of Tibetan hammered brass (106420, loan).

CASE, Dr. E. C. (See under Michigan, University of.)

- CASEY, Mrs. LAURA WELCH, Washington, D. C.: Pottery pitcher from Guadalajara, Mexico, and a coiled basket from northern Mexico (109166).
- CASH, Miss LILLIAN, Washington, D. C.: Medusae from Black Pond, Va. (109623).
- CATHCART, Miss MAUDE, Nashville, Tenn.: Specimen of beetle larva and a mollusk from Tennessee (105785).
- CATHOLIC UNIVERSITY OF AMERICA, Department of Biology, Washington, D. C.: (through Rev. Hugh O'Neill) 37 plants (109236). Exchange.
- CAUM, E. L. (See under George C. Munro.)
- CEBALLOS, GONZALO, Cadiz, Spain: 4 determined specimens of Ichneumon flies representing the same number of species (107243). Exchange.
- CHACE, E. M. (See under E. P. Chace).
- CHACE, E. P. and E. M., San Pedro, Calif.: 8 isopods, approximately 60 amphipods, and 2 hermit crabs (107399).
- CHAMBERLAIN, E. B., Charleston, S. C.: Salamander from South Carolina (106362).
- CHAMBERLAIN FUND, FRANCES LEA, Smithsonian Institution: 4,000 mollusks collected in Haiti by Mr. Walter J. Eyerdam (97017); 2 pendants, 1 of carnelian and the other of lapis-lazuli (106662); blue diamond weighing 0.56 carat, and a canary diamond weighing 0.53 carat (107139); Brazilian emerald weighing 10.3 carats (107611); 6 carved objects including jade, tourmaline, coral, and amber (109215); carving of "red" amber representing the hand of a Buddha (109772); approximately 20,000 specimens of mollusks collected in Jamaica and Haiti by the late C. R. Orcutt (110176); approximately 40 specimens of freshwater fossil shells from San Juan County, N. Mex. collected by Charles H. Sternberg (110309).
- CHAMBERLIN, Dr. R. V. (See under Harvard University, Cambridge, Mass., Museum of Comparative Zoölogy.)
- CHAPIN, Dr. E. A., Washington, D. C.: Starling (106674); 54 amphipods, and 1 isopod collected by the donor at Ocean View, near Norfolk, Va. (107087); approximately 25 parasitic copepods from Washington, D. C., approximately 35 discodrilid worms from crayfish, from Alabama and Yellowstone Park, Wyo. (107418).
- CHAPMAN, Dr. J. W. (See under H. Lawrence.)
- CHARDIN, P. TEILHARD DE, Tientsin, China: 2 mandibles of a mammal from northern Manchuria—Djalainor (109084).
- CHARLTON & DAVIS, Fort Lauderdale, Fla.: Piece of planking infested with borers (106921).
- CHASE, Mrs. AGNES. (See under Department of Agriculture, Bureau of Plant Industry, and Corn. Osten.)
- CHASE, Lieut. Commander GILBERT P., United States Navy (retired), Paris, France: 2 photographs of the Cuvier tablet (109755).
- CHASE, H. M., Danville, Va. (through Mr. William Middleton): 2 specimens of land shells from North Carolina (108381).
- CHASE, Dr. WILL H., Cordova, Alaska: Stone lamp from Pavlof Bay, Alaska (107114).
- CHAVES, Sr. Don Diocleciano, Museo Nacional, Managua, Nicaragua: 60 plants from Nicaragua (108369).
- CHEN, T. Y., Amoy, China: 6 marine annelids (108459).
- CHICAGO HISTORICAL SOCIETY, Chicago, Ill.: Photographic copy of an original lithograph of the "Ariel," Henson's aerial steam carriage of 1840 (109436).
- CHING, R. C. (See under National Research Institute, Metropolitan Museum of Natural History, Nanking, China.)

- CHRISTENSEN, Dr. CARL. (See under Universitetets Botaniske Museum, Copenhagen, Denmark.)
- CIFERRI, Dr. R., director, Estacion Nacional Agronomica, Moca, Dominican Republic: Hummingbird from the Dominican Republic (109515).
- CLAFLIN, Mrs. HARRY E. (See under Mrs. Egbert M. Copps.)
- CLAGETT, R. M., Washington, D. C.: Specimen of trigger fish taken at Wachapreague, Va., in about 90 feet of water (106909).
- CLAPP, Mrs. MARY S., Washington, D. C.: Gray squirrel from the Smithsonian grounds (106601).
- CLARK, AUSTIN H., Washington, D. C.: 6 plants from Maryland (107014, 107102).
- CLARK, B. PRESTON, Boston, Mass.: 23 hawk moths and a few African moths new to the Museum collections (108398).
- CLARKE, Dr. FRANK W., Washington, D. C.: Slab weighing 435 grams of meteoric iron from Canyon Diablo, Ariz. (107391).
- CLARKE, JOHN F. (See under Provincial Museum, Victoria, British Columbia, Canada.)
- CLARKE, Master KARL, Washington, D. C.: 14 stone beads from a dry river bed in British Columbia (107381).
- CLAY-ADAMS CO., New York City (through J. A. Kyle): Skull of a white woman (107098).
- CLELAND, Miss FLORENCE, Mussoorie, India: 52 plants from the Himalayas (108411).
- CLEMENTS, J. MORGAN, Papeete, Tahiti, French Oceania: 1,150 miscellaneous insects and a small collection of corals from Tahiti (110393).
- CLINTON, H. G., Manhattan, Nev.: 2 specimens of the mineral frankolite from Manhattan, Nev. (106675).
- COBEY, Commander E. A., United States Navy, Washington, D. C.: Small leather-covered trunk which had been in the Cobey family for more than 100 years (107236). Loan.
- COCHRAN, Miss DORIS M., Washington, D. C.: Parasitic isopod from the mouth of an alewife, collected by the donor on Solomon's Island, Md. (110374).
- COCKERELL, Prof. T. D. A., Boulder, Colo.: Approximately 718 miscellaneous insects from Australia and Malay Peninsula (106591); 22 named flies representing 11 species, 2 of which are new (106739); 43 insects, chiefly bees, including 3 cotypes (106740); 71 insects in the orders of Hymenoptera, Coleoptera, and Diptera, 43 being paratype specimens of 1 species of Hymenoptera (106942); 16 named bees and wasps, representing the same number of species, and 68 miscellaneous insects (107895); 17 insects in the order Hymenoptera, 15 of which are types (110434); 98 miscellaneous insects, mostly determined to genus, many to species, including 4 cotypes (110551).
- COLBURN, B. S., Biltmore, N. C.: Examples of hiddenite from North Carolina (110558). Exchange.
- COLE, FRANK E., Washington, D. C.: Winding spool for bobbin winder, made by the donor's grandfather (109612).
- COLE, W. S., Ithaca, N. Y. (through Dr. C. Wythe Cooke): 12 specimens (2 slides) of brachiopods (types) from the Oligocene of Mexico (108037).
- COLORADO STATE AGRICULTURAL COLLEGE, Fort Collins, Colo., through Prof. C. P. Gillette): 5 flies (108017). Exchange.
- COLORADO STATE ENTOMOLOGIST, State Agricultural College, Fort Collins, Colo.: 25 specimens of flies from Fort Collins, belonging to the family Borboiidae, representing a new species (108901).
- COMMERCE, DEPARTMENT OF:
Bureau of Fisheries: 3 hermit crabs from Beaufort, N. C. (106134); type specimens of a fish from Galveston, Tex. (106502); 2 hippas (crusta-

COMMERCE, DEPT. OF—Contd.

Bureau of Fisheries—Continued.

ceans) from Beaufort, N. C. (106680); 4 parasitic copepods taken on goldfish at Durham, N. C., by C. S. Brimley, being the first record of the species from North Carolina (106992); (through Harvey C. McMillin, Natural History, Museum, Stanford University, Calif.) approximately 50 specimens of marine shells and 4 clusters of barnacles found in a box of seed oysters imported into the State of Washington from Japan (108913); 70 specimens of salmonoid fishes from the Great Lakes (109103); approximately 5,021 specimens of copepods, including the type lots of 8 species, taken by the bureau from various localities, chiefly Chesapeake Bay (109878); from the bureau's laboratory, Beaufort, N. C. (through James S. Gutsell) approximately 54 specimens of mollusks (109848).

United States Coast and Geodetic Survey: An early circular dividing engine (106350); series of 26 surveying and navigation instruments (106954).

COMMERCIAL MUSEUM, THE, Philadelphia, Pa.: 2 specimens of galena from Oklahoma (108701). Exchange.

CONKLIN, Miss CECILE L., Baltimore, Md.: Type slide of a new species of ciliate protozoan (108638).

CONN, RUSSELL A. (See under Prof. J. C. Anderson.)

COOK, Dr. E. FULLERTON, Philadelphia, Pa.: Pill jar used in 1812 by Dr. George W. Gentworth in his pharmacy at Chester and Race Streets, Philadelphia, Pa.: 2 specimens of early form of compressed tablets in original containers, prepared by Jacob Dunton, Philadelphia, about 1876; illustrated folder showing buildings of all pharmacy colleges in the United States, and a drug map of the world (110103).

COOK, Dr. E. FULLERTON—Contd.

(See also under United States Pharmacopoeial Convention (Inc.), Philadelphia, Pa.)

COOK, O. W. (See under Eastman Kodak Co.)

COOKE, Dr. C. WYTHE, Washington, D. C.: 14 specimens, 4 species, of pearly freshwater mussels from Georgia (110175). (See also under W. S. Cole.)

COOKE, Miss E. C. (through Mrs. E. H. Darby, Washington, D. C.): Carved sandalwood box from India (109868). Bequest.

COOLIDGE, Mrs. CALVIN, Northampton, Mass. (through Mrs. Sol Bloom, Washington, D. C.): Rose chiffon velvet gown, pair of rose velvet slippers with gold heels and trimmings, and a pair of gold silk chiffon stockings (109774).

COOPER, G. P. (See under Yale University, School of Forestry.)

COPELAND, Prof. E. B. (See under California, University of, Department of Botany.)

COPPS, Mrs. EGBERT M., Stevens Point, Wis. (through Mrs. Harry E. Claffin, Washington, D. C.): Revolver of the period of the Civil War owned by Capt. Egbert M. Copps of the Ninety-eighth New York Volunteers (107361).

CORCORAN GALLERY OF ART. (See under W. F. Doll.)

CORNELL UNIVERSITY, Ithaca, N. Y.: 6 flies (106993, 107422, 108134) (through Dr. J. C. Bradley) 85 named specimens of wasps of the family Bembecidae, representing 16 species and including 3 paratype specimens (108429, exchange); 8 bird skins, including 4 types (109611, exchange); (through Doctor Bradley) wasp (paratype) (107877); gray-winged francolin (110157).

CORNING GLASS CO., Corning, N. Y.: 3 early "Nonex" (low expansion) glass lantern globes (106291).

CORRINGTON, J. D., Syracuse, N. Y.: Albino mud puppy, and a melanistic spotted salamander (109124).

- COTTAM, WALTER P., Provo, Utah: 13 specimens of Utah ferns (106877).
- COTTON-TEXTILE INSTITUTE, (INC.) THE, New York City: 20 specimens of cotton goods selected to represent the wide range of cotton as a dress material from 1,000 fabrics produced by American manufacturers for the summer of 1930 (109926).
- COTTREAU, Dr. J. (See under Museum National d'Histoire Naturelle, Paris, France.)
- COURT, EDWARD J., Washington, D. C.: 125 eggs and 5 nests of Javan birds (106465). Exchange.
- COVILLE, Dr. FREDERICK V., Washington, D. C.: Plant from New York (107222). (See also under Agriculture, Department of Bureau of Plant Industry, William C. Ferguson and Ralph Imler.)
- COX, ROBERT E., Altoona, Pa.: Revolver used by Ensign Worth Bagley, United States Navy; revolver owned by Chief Gunner Robert E. Cox, United States Navy, and medal of honor awarded to him by Congress (107092).
- COXEY, W. JUDSON, Philadelphia, Pa.: Three specimens of Lepidoptera new to the Museum collections, 1 a new species (108709).
- COYLE, Mrs. RANDOLPH, Washington, D. C.: 9 fragmens of ancient pottery from Cabrit Island, Port-au-Prince Bay, about 10 miles northwest of Port-au-Prince, Haiti (110300).
- CRAIG, Dr. ARTHUR STILL, Washington, D. C. (through Dr. Riley D. Moore): Copy of Craig's Atlas of Sectional Anatomy for addition to the osteopathy collection (106769).
- CRAMPTON, Prof. G. C., Amherst, Mass.: 7 flies collected in the Province of Quebec in 1929 (108905).
- CRAWFORD, KENNETH J., Bismarck, N. Dak.: 2 fresh-water fossils from North Dakota (107876).
- CRAWFORD, M. D. C., New York City: Bobbin of cotton yarn spun on the old machinery in the "Old Slater Mill," Pawtucket, Rhode Island, prior to 1847 (108119).
- CRAWFORD, WILLIAM P., Bisbee, Ariz.: Specimen of the mineral bismuthite, from Hachita, N. Mex. (108271); specimen of stalactitic limonite coated with malachite from a mine in Bisbee, Ariz. (109200).
- CREASER, EDWIN P. (See under Michigan, University of, Museum of Zoology.)
- CRISSON, GEORGE, East Orange, N. J.: British pinfire revolver made about 1860 (106151).
- CROSBY STEAM GAGE AND VALVE CO., Boston, Mass.: 2 modern engine indicators (109635).
- CROWELL, Rev. HARVEY E., Osborne, Ohio: Leather side-saddle and a pair of leather saddlebags made by William Craig, of Mercersburg, Pa., great-grandfather of the donor, between 1835-1838 (104090).
- CUBA, SECRETARIA DE AGRICULTURA, COMMERCCIO Y TRABAJO, Habana, Cuba (through S. C. Bruner): 4 beetles (106976).
- CURRAN, C. H. (See under American Museum of Natural History, New York City.)
- CURRY, Dr. D. P. (See under Panama Canal Health Department.)
- CURTISS AEROPLANE & MOTOR CO. (INC.), Garden City, Long Island, N. Y.: A taxiphote, French stereoscope of about 1912, with slides illustrating aviation scenes and types of the same period (109499, loan); portrait of Glenn Curtiss; model of the Curtiss P-6 airplane 1930, and a full-sized Curtiss-Reed propeller of 1926 (109210); blue prints of Curtiss airplanes, showing details and specifications of the 1925 Army racer R-3-C-1, the first trans-Atlantic aircraft, NC-4, and the winner of the Guggenheim contest, the *Tanager* (109814).

- CUSI MEXICANA MINING CO., El Paso, Tex.: China clay from the region around Cusiuhiriachio, Mexico (107093).
- CUSTER, Dr. C. P., Denver, Colo.: Bee's nest of stone (106135).
- CZERNY, Rev. LEANDER, Kremsmunster, Upper Austria: 2 flies collected by Boris III, King of Bulgaria (105794).
- DAHLGREN, Dr. ULRIC, Princeton, N. J.: 2 specimens of deep-sea prawns (107745).
- DALLAS, Dr. E. D., Buenos Aires, Argentina: Specimen of beetle (109743).
- DAMMERS, Commander C. MONTAGU, Riverside, Calif.: 2 specimens of moths (108643).
- DAMPF, Dr. Alfonso. (See under Mexico, Government of, Oficina Federal para la Defensa Agricola, San Jacinto.)
- DANGLADE, ERNEST, Vevay, Ind.: 13 specimens of turbellarian worms, collected by the donor at Cedar Key, Port Inglis Bar, Fla. (109512).
- DANIEL GUGGENHEIM MEDAL FUND (INC.), THE, New York City: Bronze copy of the Daniel Guggenheim medal awarded for great achievements in aeronautics (109543).
- DARBY, Mrs. E. H. (See under Miss Emma C. Cooke.)
- DARLING, CYRUS, Worcester, Mass.: Fern from Massachusetts (106246).
- DAVIS, B. G., Takoma Park, Md.: Crandall typewriter of early make (109135.)
- DAVIS, E. W., Richfield, Utah: 9 insects, each a type representing a different species described by Dr. F. W. Goding (106354).
- DAVIS, R. N. (See under Everhart Museum, Scranton, Pa.)
- DAVIS, WILLIAM T., Staten Island, N. Y. (through H. S. Barber): Specimen (paratype) of a beetle (106732).
- DAVIS & GECK (Inc.), Brooklyn, N. Y.: 19 specimens of surgical suture material for use in illustrating the history of suturing (106241).
- DAVY, Dr. J. BURTT. (See under British Government, Imperial Forestry Institute, University of Oxford, England.)
- DAWES, Miss ANNA L., Pittsfield, Mass.: Silver center piece presented to the Hon. Henry L. Dawes, United States Senator from Massachusetts, 1875-1893, on the occasion of his silver wedding anniversary, May 3, 1869, and an India shawl worn by his wife during the period 1880-1893 (108016).
- DAYTON, W. A. (See under Agriculture, Department of, Forest Service.)
- DEAM, C. C., Bluffton, Ind. (through Prof. A. S. Hitchcock): 4 plants (108169). Exchange.
- DEAN, F. A. W., Alliance, Ohio: 4 specimens, 2 species, of land and marine shells from California and Curacao; 19 insects from Ecuador, South America, and 8 fossils from Alabama (105718); 7 land shells, 2 species, from France (106681).
- DECKER, Prof. CHARLES E., Norman, Okla.: Approximately 2,500 specimens of Ordovician bryozoans from Oklahoma (106240).
- DEGENER, OTTO, Volcano House, Kilauea, Hawaii: Approximately 150 specimens of hermit crabs; 325 specimens, 18 species, of marine shells from the Hawaiian Islands; also a collection of crustaceans; 27 specimens, 2 species, of marine shells from the Hawaiian Islands; also crustaceans; approximately 100 specimens of crustaceans, collected by the donor; collection of natural history material, comprising marine invertebrates, reptiles, coral, mollusks, echinoderms, fishes, and insects; approximately 50 amphipods collected at Punaluu by the donor and Y. Iwasaki, together with approximately 40 crabs and 150 hermit crabs collected by Pohina at Mi-

DEGENER, OTTO—Continued.

loli; invertebrate material comprising approximately 50 amphipods, 20 isopods, 20 shrimp, 50 crabs, 500 hermit crabs, fishes, mollusks and insects; approximately 115 marine invertebrates, also a collection of fish and starfish; shrimp, hippa, sponge, approximately 100 hermit crabs, echinoderms, mollusks and fishes; approximately 20 isopods, 9 shrimp, about 10 crabs and approximately 100 hermit crabs, 1 nemertean, 1 marine annelid, mollusks and echinoderms (106705; 106758; 107135; 107396; 108395; 109561; 109564; 109793; 109907; 110400).

DELO, DAVID M., Kansas City, Mo.: 25 slides containing types of microscopic fossils (110436).

DEMAREE, Prof. DELZIE, Fayetteville, Ark.: 96 plants (106598); 157 plants from Arkansas (107211); 278 plants from Texas (109874, 110430).

DENLEY, CHARLES F., Rockville, Md.: 2 specimens of Hondo copper pheasant (106233; 107017); Bornean fire-back pheasant (107636); Lady Amherst pheasant (109427).

DENNIS, Mrs. S. W., Irwin, Idaho: Mormon cricket from Idaho (107506).

DENNISTON, E. M., Burlington, Iowa: Approximately 50 specimens of pearly fresh-water mussels from the United States (108907).

DENTON, S. B., Robbinsville, N. C.: Centipede, also 2 specimens of fungi, and 9 specimens, 5 species, of land, and fresh-water shells from North Carolina (105544, 108661).

DEPARTAMENTO NACIONAL DE AGRICULTURA, Bogota, Colombia, South America: 6 insects from Colombia, South America (108715).

DEWEY, L. H. (See under Agriculture, Department of, Bureau of Plant Industry.)

DICKINSON, Mrs. CHARLES M., Binghampton, N. Y.: An exhibition specimen of Devonian sandstone crowded with impressions of fossils (108666).

DOLL, W. F., Liberty, N. Y. (through Corcoran Gallery of Art, Washington, D. C.): Watch with case made of steel from the wreck of the U. S. S. *Maine* (108664); also letter from W. F. Doll Manufacturing Co. to Admiral George Dewey, and letter from Admiral Dewey to W. F. Doll & Co. (108926).

DOMIN, Dr. KAREL. (See under Botanic Institute of Charles University, Prague).

DONKER, P. E. (See under David J. Molloy Co.)

DOZIER, Dr. H. L., Newark, Del.: 4 insects (106944).

DRUMMOND, GORDON, Washington, D. C.: Model of the Curtiss Navy racer, type CR-2, which in 1922 was third in the Pulitzer race and in 1923 won the Schneider trophy at Cowes, England (109813). Loan.

DRUSHEL, Prof. J. A., New York City: 39 plants (107294)

DUCE, JAMES TERRY, New York City: Small collection of invertebrate fossils from Colombia, South America (102235).

DUCKWORTH, A. S., Cape Girardeau, Mo.: 5 disks of calcite from near Sedgwickville, Cape Girardeau County, Mo. (106529).

DUNBAR, Dr. CARL O., New Haven, Conn. (through Dr. David White): Four specimens of plant fragments from the Mauch Chunk red shale, 10 miles north-northwest of Harrisburg, Pa. (110169). (See also under South Dakota, University of.)

DUNCKER, HENRY, East South Bend, Ind. (through Dr. M. W. Lyon): Coon skull and mink skull from Laporte County, Ind. (109239).

DUNN, Maj., L. H., Ancon, Canal Zone: 16 flies from Canal Zone (108315, 108852). (See also under Gorgas Memorial Institute of Tropical and Preventive Medicine, Ancon, Canal Zone.)

DUTCH PRODUCTS CO., Philadelphia, Pa.: 2 specimens of Haarlem oil for addition to the history of pharmacy collection (109525).

- DUTCHER, F. E., Springfield, Mass.: 37 specimens, 13 species, of marine shells from southwest Africa (105825); 36 specimens, 11 species, of marine shells chiefly from South Africa (109837); 27 specimens, mostly marine shells, from Cape Colony and Japan (110059).
- DYER, ISADOR, Washington, D. C.: Carpenter's small plane for concave surfaces made about 1875 (109171).
- EARL, Mrs. H. L., Mitchellville, Md.: Samplers, needle case, and pin cushion, brooch, mother-of-pearl card case, and 2 miniatures, 1 of Theodore Godet, of Bermuda, descendant of Huguenots, and the other of his wife, Anne Miller Godet, nineteenth century (107010).
- EAST, CHARLES E., Washington, D. C.: Congo snake and a rainbow snake from Wallaceton, Lake Drummond, Va. (106666).
- EASTMAN KODAK CO., Rochester, N. Y. (through O. W. Cook): Collection of cameras, lenses, color filters and shutters (14 specimens) (109581); transparency showing the steps in the production of Kodachrome motion-picture film (110071).
- EASTWOOD, Miss ALICE. (See under California Academy of Sciences.)
- ECKLAND, PENNELL, Washington, D. C.: Flying squirrel (107834).
- ECOLE SUPERIEURE D'AGRICULTURE, Jardin Botanique, Hanoi, Tongking, Indo-China: 199 plants from Indo-China (109169). Exchange.
- EDWARDS, A. M., Washington, D. C.: Yellow-breasted chat from Maryland (106696).
- EGGLESTON, Mrs. GARDNER, Washington, D. C.: Colored plaster copy of the Moorish gateway of the Alhambra, presented in memory of her mother, Mrs. Sarah T. Gardner (107109); painted terra cotta camel from Tunis (109119).
- EGGLESTON, W. W. (See under Agriculture, Department of, Bureau of Plant Industry.)
- EHRMANN, MARTIN L., New York City: Pendant of amber (109771).
- EICKEMEYER, RUDOLF, Yonkers, N. Y.: 83 framed pictorial prints, 58 medals, plaques and awards, 15 portfolios, 3 cups, a wet plate by Prof. Charles F. Chandler, and a framed artotype copy of the first portrait taken by photography, with Prof. J. W. Draper's signature (106456); specimen of felted robe fabric made about 1872 on machine invented and patented by the donor's father, Rudolf Eickemeyer (110442).
- EKMANN, Dr. E. L., Santo Domingo, Dominican Republic: 2 skins of a warbler from the Dominican Republic (108328).
- ELIAS, Rev. Brother, Barranquilla, Colombia: 138 plants from Colombia (108400,109058).
- ELLIS, Miss MARJORIE H., Washington, D. C.: Shot pouch and powder horn of the early part of the nineteenth century (106225); 9 bird skins from Iowa (106232).
- EMERY, D. L., St. Petersburg, Fla.: 20 mollusks from Florida (106497).
- ENGLE, C. A. (See under Interior, Department of, Indian Irrigation Service.)
- ESHNAUR, Mrs. W. H., Bellflower, Calif.: 20 specimens, 8 species, of land and fresh-water shells from Kitchener, Ontario, Canada (106687). Exchange.
- EVANS, Prof. ARTHUR T., Oxford, Ohio: 14 fishes and 1 snake from Carp Lake, Michigan (106938).
- EVANS, H. E., Rockwood, Tenn.: Miscellaneous mineral crystals from various localities (107079).
- EVANS, S. C., Riverside, Calif.: Two casts of cogged stones (104656).
- EVANS, VICTOR J., Washington, D. C.: West African antelope (106290); West Indian tree-duck (106512); fruit pigeon (106603); orang (106928); little blue heron (106989); great black cockatoo (107004); Cape Barren goose, Napoleon's peacock-pheasant, and eastern swan-hen (107578); European sheep (107882);

- EVANS, VICTOR J.**—Continued.
upland goose (108353); sable antelope (108441); gibbon (109054); bird (jabiru) (109550); Japan peafowl (109775).
- EVERHART MUSEUM**, Scranton, Pa. (through R. N. Davis, director): Specimen of fly collected in Pennsylvania (106266).
- EWAN, JOSEPH**, Los Angeles, Calif.: 11 specimens of ferns (108323). Exchange.
- FAIRCHILD BROTHERS AND FOSTER**, New York City: 2 pharmaceutical preparations for addition to the animal drug collection (109522).
- FAIRHEAD, R. C.**, Rushville, Nebr. (through Swift and Co.): An old handmade sausage grinding machine (110326).
- FALL, Prof. HENRY C.**, Tyngsboro, Mass.: Beetle (parasite) (109715).
- FARLEY, MALCOLM F.**, Foochow, China: 5 pottery lamps from China (107579).
- FELIPPONE, Dr. FLORENTINO**, Montevideo, Uruguay: 59 specimens, 19 species, of land, fresh-water and marine shells from Uruguay and Argentina, and 9 insects from Uruguay (104690); 22 lots of fresh-water mollusks, 3 shrimps, 1 worm, 1 snake, and a small collection of insects from Uruguay (105705); 4 specimens, 3 species, of fresh-water and marine shells, a spider, a crustacean, and a bird's egg from South America (106431); 32 lots of fresh-water and marine mollusks from Uruguay, Indo Pacific, and elsewhere, 2 alcyonarians, a dead test of a sea-urchin, and 4 bird's nests from Uruguay (107085); barnacle from Puerto de la Paloma, Rocha; starfish, and 29 specimens of land, fresh-water and marine mollusks from Uruguay and Paraguay (107581).
- FERGUSON, C. B.**, Kent, Wash.: A group of epidote crystals with twin crystals of quartz and 2 specimens of natrolite and other miscellaneous minerals (109783). Exchange.
- FERGUSON, WILLIAM C.**, Hempstead, N. Y. (through Dr. Frederick V. Coville, Washington, D. C.): Plant from New York (106925).
- FIDUCCIA, C. S.**, New Orleans, La.: Beetle (106122).
- FIELD MUSEUM OF NATURAL HISTORY**, Chicago, Ill.: 17 plants from British Honduras (106874); 221 plants (108274); plant from Central America (108919); 75 specimens of ferns collected in Peru by L. Williams (109116); 67 plants from British Honduras; 605 plants; 121 plants collected in Peru by L. Williams; 10 plants collected in Mexico by Dr. C. A. Purpus; 11 plants from Mexico; 40 plants from Brazil; 52 plants chiefly from Peru; 24 plants from Mexico and Central America; 48 plants collected in Ecuador by Rev. Brother Firmin; 17 Peruvian plants collected by Dr. A. Weberbauer; 4 specimens of ferns from Yucatan; 548 plants chiefly from South America: 161 plants and 41 photographs of plants (106875; 106948; 107627; 108928; 108389; 107420; 107569; 107603; 107870; 108133; 108174; 108458; 108691; 109131; 110387). Exchange.
- FISCHER, PHILLIP**, Buffalo, N. Y.: 9 insects, including 2 moths, a butterfly and 6 parasites (107566).
- FISHER, Dr. A. K.**, Washington, D. C.: Collection of reptiles, amphibians, mammals, fishes, crustaceans and a spider from the United States (108923).
- FISHER, GEORGE L.**, Houston, Tex.: 155 plants from the western United States (107759).
- FISHER, W. K.**, Pacific Grove, Calif.: 75 amphipods and 2 isopods taken in a swampy creek which runs into Dunham's Bay, Lake George, New York (106263).
- FISHER, W. S.** (See under C. A. Frost, and J. N. Knull.)
- FLETCHER, Dr. T. BAINBRIDGE**, Pusa, India: 550 specimens of moths (110348).

- FLETT, J. B.**, Bremerton, Wash.: 12 specimens of ferns from Washington State (110388).
- FLORIDA GEOLOGICAL SURVEY**, Tallahassee, Fla.: Specimen of Ocala limestone containing Foraminifera from Jackson County, Fla. (108319).
- FLORIDA, STATE PLANT BOARD OF**, Gainesville, Fla. (through Dr. E. W. Berger); 3 beetles reared from guavas from Big Pine, Big Pine Key, Fla. (106690); a microlepidopteron collected in Florida representing a new genus and new species (106749).
- FLORIDA, UNIVERSITY OF**, Agricultural Experiment Station, Gainesville, Fla. (through A. N. Tissot): 2 flies reared from a moth in Florida (107368); fly reared from an amaryllis bulb in Florida (108357).
- FOERSTE, Dr. AUGUST F.**, Dayton, Ohio: Second portion of the donor's private collection of invertebrate fossils and paleontological pamphlets (106239).
- FOLSOM, Dr. J. W.**, Tallulah, La.: 450 insects, springtails, representing 65 species, 33 of which are new, represented by types and cotypes (110362).
- FORD, F. L.** (See under Keratol Co., The, Newark, N. J.)
- FOREST RESEARCH INSTITUTE AND COLLEGE**, Dehra Dun, U. P. India (through Dr. J. C. M. Gardner): 7 specimens of beetles representing 5 species, 2 of which are represented by paratypes (106907); 56 beetles representing 30 species (110098).
- FOSHAG, Dr. W. F.**, Washington, D. C.: 14 fishes collected in Saratoga Springs, south end of Death Valley (106657).
- FOSTER, M. P.**, Seattle, Wash.: 8 old Eskimo ivory buttons (107099).
- FOUGERA & CO. (INC.)**, E., New York City: 2 specimens of Roche's embrocation for addition to the history of pharmacy collection (109843).
- FOWLER, CHARLES O.**, Fairbanks, Alaska: Fossil jaw bone of a bison (108888).
- FOX, Dr. CARROLL**. (See under Treasury Department, U. S. Public Health Service, Rosebank, Staten Island, N. Y.)
- FRANKLIN MACHINE CO.**, Providence, R. I. (through George R. Burt, vice president): Group of George H. Corliss engine governors and valve models, and model of Amoskeag fire-engine pump; also an unframed photograph of George H. Corliss, and a framed enlargement thereof (109438); bound volume of 155 cuts showing the evolution of the George H. Corliss steam engine, with typewritten index to the same (109722).
- FRICK, CHILDS**. (See under Smithsonian Institution, National Museum, collected by members of the staff, and Dr. J. W. Gidley.)
- FRIEDBERG, J. R.**, Philadelphia, Pa.: An old Chinese jail lock and a pair of old spectacles (110330).
- FRIEDMANN, Dr. HERBERT**, Washington, D. C.: 13 eggs of shiny cowbird from Argentina (108329).
- FRIZZELL, DON L.**, Seattle, Wash.: 2 specimens of Pleistocene fossil shells from the type locality, Port Blakeley, Wash. (110320).
- FROST, C. A.**, Framingham, Mass (through W. S. Fisher): 75 beetles representing 20 species (107407).
- FROST, S. W.**, Arendtsville, Pa. (through J. C. Bridwell): 35 adult beetles and 3 pupae representing 1 species of Brachidae from Panama (106592); 98 flies collected on Barro Colorado Island, Canal Zone (109079).
- FULLER (INC.)**, LEO H., Long Island City, N. Y.: 7 examples of silk-stencil printing, 6 in water color and 1 in oil (108713).
- FULTON, Prof. B. B.**, Raleigh, N. C.: 19 insects in the order Orthoptera, representing 6 species, including 10 types and allotypes (108685). Exchange.

- GABRIELSON, IRA N., Portland, Oreg.: Plant from northern California (110406).
- GAHAN, A. B. (See under Dr. J. P. Kryger.)
- GAHM, O. E., Washington, D. C.: 36 isopods collected in a mushroom house at Kennett Square, Pa. (109906).
- GAIGE, Prof. F. M. (See under Michigan, University of.)
- GALLOWAY, J. C., Port Allegany, Pa.: Hairy-tailed mole (108716); 6 crayfishes from Ohio and Pennsylvania (108884).
- GARBER, Miss FLORENCE, Washington, D. C. (through Dr. George C. Keidel): Framed half-tone portrait of Dr. Abram Pascal Garber (107730).
- GARBER, PAUL E., Washington, D. C.: Eastman No. 1 kodak, and carrying case (107861); carpenter's wooden plane made in Austria (109057); spiral screw driver of early type, originally patented in 1868 (109435).
- GARDNER, J. C. M. (See under Forest Research Institute and College, Dehra Dun, U. P. India.)
- GARDNER, Capt. L. L., United States Army Medical Corps, Camp John Hay, P. I.: 5 specimens of crabs from the mountain streams of Luzon, skin and skull of a flying squirrel, and a bird, collected by the donor (106885); fresh-water shrimp from the Philippines, collected by the donor, also a wild-cock snare (110172).
- GARDNER, Prof. N. L. (See under California, University of, Department of Botany.)
- GARLAND, JOHN S., Washington, D. C.: Sword and scabbard presented by the State of Virginia to Col. John Garland in recognition of services during the War with Mexico (110438). Loan.
- GATES, Prof. GORDON E., Judson College, Rangoon, Burma: 4 cat fleas and 33 leeches from various ponds around Rangoon (105934); approximately 288 specimens of marine in-
- GATES, Prof. GORDON E.—Contd.
vertebrates, 2 sea urchins, a starfish, 28 mollusks from Tavoy coast, 10 corals, 18 fishes, and an ant from Burma, collected by the donor (106702).
- GEE, Dr. N. Gist, Peiping, China: 2 dry specimens and 5 microscopic slides of sponges (106373).
- GEISER, Dr. S. W., Dallas, Tex.: 4 specimens of phyllopod crustaceans from west Texas, collected by the donor (107376).
- GEOLOGISCH - PALAEOONTOLOGISCHES INSTITUT DER UNIVERSITÄT, Halle, Germany: Slab with Mesozoic crinoids from Friedburg, Germany (109358). Exchange.
- GEORGE WASHINGTON UNIVERSITY, Department of Botany, Washington, D. C. (through Prof. Robert F. Griggs): 201 plants (106499). Exchange.
- GIDLEY, Dr. J. W., Washington, D. C.: Part of a metate and a fragment of a mano found about 10 miles south-southwest of Hegemen, Idaho, on the old Oregon Trail (109811).
- GILBERT, J. W., Jacksonville, Fla.: Human lower jaw found at Canal Point, Fla. (109111).
- GILBERT, W. M. (See under Carnegie Institution of Washington.)
- GILES, HAYDEN T., Worcester, England: 11 English bookplates (106284, 106918); bookplate etched by George Horton for William Bennett (108276).
- GILL, DE LANCEY, Washington, D. C.: Old lightning-rod point (109224).
- GILLETTE, Prof. C. P. (See under Colorado State Agricultural College, and Miss M. A. Palmer.)
- GILMER, WALKER, Detroit, Mich.: 2 examples of coal measures plants from West Virginia (107416).
- GINGRICH, W., Baltimore, Md.: 7 specimens, 1 species, of land shells from St. Christopher Island, British West Indies (108048).

- GLASCOCK, Alfred E., Washington, D. C.: Stone ax, stone mortar, and 5 boiling (?) stones; also quartzite and rhyolite implements, all from Molly Boat Cove, Washington, D. C. (108439, 109121).
- GLOVER, W. IRVING. (See under Eugene Klein, and Post Office Department.)
- GOODFELLOW, Mrs. D. G., Payson, Ariz.: Wax impression of a chalcidony Roman seal found at a Roman camp on Stanning Moor, Northumberland, England (110100).
- GOODLOE, HENRY B., Greenwood, Va.: 3 specimens of land shells on bananas (108131).
- GOODMAN, FRED., Linden, Tex.: Living horn snake from Texas (108262).
- GOODMAN, ARCHDEACON F. W., New York City: Two lance or arrow heads, a small ax or chisel, and a hafted stone knife, all from the old Point Hope ruins, Alaska (107096).
- GORDON, Miss ISABELLA. (See under British Government, British Museum (Natural History), London, England.)
- GORDON, JACK G., Corsemalzie, Whauphill, Wigtownshire, Scotland: 5 birds' eggs from various localities (106388). Exchange.
- GORGAS MEMORIAL INSTITUTE OF TROPICAL AND PREVENTIVE MEDICINE, Ancon, Canal Zone (through Maj. L. H. Dunn): 26 specimens of flies from Canal Zone (106130, 106432); 3 flies with eggs attached from Canal Zone (109544).
- GORGAS, Mrs. WILLIAM C., Washington, D. C.; A Raulang electric automobile which belonged to her husband, the late Major General Gorgas (106301); also 6 specimens relating to the life of the late Major General Gorgas, United States Army (106746). Loan.
- GOSS CORPORATION, JOHN L., Stonington, Me.: Slab of Deer Isle granite 2 feet 8 inches square, and 4 inches thick (105572).
- GOUBERT, ALEJANDRO, Neiva Huila, Colombia: Teeth of an extinct species of horse from Colombia, South America (108697).
- GOWER, Miss MABEL A., Ridgecrest, N. C.: Plant (106118).
- GRADY, Mrs. F. L., Decatur, Ill.: 6 isopods taken from a well in Decatur, Ill. (105947).
- GRAHAM, Rev. DAVID C., Suifu, Szechwan, China: Approximately 1,899 specimens from China, including reptiles, insects, mollusks, fishes, mammals, marine invertebrates, also 4 pieces of pottery and 2 vases (106708); approximately 3,029 specimens from China, including birds, fishes, insects, mollusks, marine invertebrates, mammals, and reptiles (106895); approximately 1,762 specimens from China, including bird skeletons, fishes, insects, mammals, worms, and reptiles (107132); collection of approximately 50,000 specimens of insects; also snakes, frogs, mammals, fishes, shrimp, bird skins, and skeletons, and land and fresh-water shells from China (107737); collection of miscellaneous natural history material from China, comprising 9 snakes, 1 lizard, 2 frogs, 2 turtles, 8 mammals, 1,650 insects, 51 fishes, 40 land and fresh-water mollusks, 22 bird skins and 49 bird skeletons (108446); collection of natural history specimens, comprising 11 bird skins, 73 bird skeletons, 67 fishes, 5 mammals, approximately 200 shrimp, 5 leeches, 15 earthworms, approximately 100 slugs and a jar of shells, 19 frogs and approximately 700 insects, all from China (109140); miscellaneous collection of natural history specimens, including insects, mollusks, fishes, birds, mammals, marine invertebrates, a lizard, and 3 turtles from China (109503); 4 bird skins and 26 bird skeletons, also a skin and 12 skeletons of mammals (109909); natural history specimens comprising 2 turtles, 1 snake, 3 toads, 97 bird skins, and

- GRAHAM, Rev. DAVID C.—Contd.
77 bird skeletons, 536 insects, 2,000 shrimp and 6 crabs, 25 mollusks, and 1 tapeworm, 27 mammal skeletons and 45 mammal skins, 186 fishes, 16 glass and stone snuff bottles from the Ming and Manchu dynasties (110353).
- GRAHAM, Miss NELLE L., Tulsa, Okla.: 4 arrowheads made from the scales of the alligator garfish (106888).
- GRANT, GORDON, New York City: 27 etchings and 14 drawings for special exhibition from April 21 to May 18, 1930 (109720). Loan.
- GRANT, Dr. H. G. (See under Virginia, Commonwealth of, Department of Health, Richmond, Va.)
- GRANT, J. M., Marysville, Wash.: 44 plants from Washington (107246).
- GRANT, Hon. ROBERT J. (See under Treasury Department, Bureau of the Mint.)
- GRAPHISCHE KUNSTANSTALT ALBERT FRISCH, Berlin, Germany: 14 examples of collotype, and a set of 8 progressive proofs, collotype (108726).
- GRAVATT, G. F. (See under Agriculture, Department of, Bureau of Plant Industry.)
- GRAVES, E. W., Bentonsport, Iowa: 4 plants (106953).
- GREENFIELD, RAY, Takoma Park, Md.: 767 amphipods, 5 isopods, and 3 crabs, collected at Gloucester, Mass., and 5 birds from Massachusetts and Maryland (107022); white-breasted nuthatch, and 2 birds (108019, 108722).
- GREENWOOD, C., Canal Point, Fla.: 3 skulls and bones of Florida Indians, and human skeletal material from near Canal Point, Fla. (108647, 109112).
- GRIEPENTROG, ELMER L., Salem, Oreg.: 22 marine and fresh-water shells and a sea urchin from Oregon (108267); 103 insects (109186).
- GRIGGS, Prof. ROBERT F. (See under George Washington University, Washington, D. C.)
- GROOT, HENDRIK DE, Los Angeles, Calif.: Javanese palm-leaf book (108215).
- GROW, C. S., Ogden, Utah: Complete human skeleton from a mound in the vicinity of Ogden, Utah (110561).
- GUILD, EASTHAM, Papeete, Tahiti, Oceania: Specimen of Makatea pigeon (109901).
- GUNNELL, L. C., Washington, D. C.: 2 weasels from Alexandria, Va. (106927).
- GUPPY, P. L., Aberfoyle, Scarborough, Tobago, West Indies: 7 specimens, 3 species of land shells from Little Tobago Island, West Indies (106520).
- GURTLER, E. C., Nanana, Alaska: Stone knife and small stone hatchet from the old place of the donor just above the Russian Mission (107097).
- GUTHRIE, Prof. J. E., Ames, Iowa: 5 water snakes showing variation from the usual color pattern (109110).
- GUTSELL, JAMES S. (See under Commerce, Department of, Bureau of Fisheries Laboratory, Beaufort, N. C.)
- HALL, Mr. and Mrs. ARTHUR W., Howard, Kans.: 24 etchings and 21 block prints for special exhibition from February 24 to March 23, 1930 (109095). Loan.
- HALL, Miss LYNN OYTTTE, Montevallo, Ala.: Specimen of worm (109182).
- HAMILTON, H. P., Two Rivers, Wis.: Skull with lower jaw of a male Indian (108021).
- HAMMERMILL PAPER CO., Erie, Pa.: Colored lithograph entitled "The Mill at Thirty Years of Age" (110395).
- HANSEN, A. M., Kotzebue, Alaska (through E. W. Nelson): Examples of Alaskan jade from a deposit on the Kobuk River (107345).
- HAPEMAN, Dr. H., Minden, Nebr.: Plant (alga) from Nebraska (106959).
- HARLAN, DAVID A., Fallstone, Md. (through William B. Marye): 3 stone objects found on the donor's farm (107511).

HARNED, Prof. R. W. (See under Mississippi, State Plant Board of.)

HARPER Dr. R. M., Athens, Ga.: 17 plants from Georgia and Alabama (108434).

HARRIS, WRAY, U. S. S. *Colorado*, San Pedro, Calif.: Approximately 490 specimens of mollusks from Samoa (106069).

HART, Miss ESTHER H., Washington, D. C.: Young cardinal (110171).

HARTSOCK, Miss DELLA, Moline, Ill.: Grooved stone maul and a chipped quartzite blade both from Illinois (109120).

HARVARD UNIVERSITY:

Arnold Arboretum, Jamaica Plain, Mass. (through Dr. Alfred Rehder, Curator of the Herbarium): 2616 plants (106065, 110444, exchange); 112 specimens of ferns from Cuba (107726).

Farlow Herbarium, Cambridge, Mass.: 65 cryptogams and 94 specimens of mosses and lichens from Africa (106677, 108022). Exchange.

Gray Herbarium, Cambridge, Mass.: 39 plants collected in Brazil by Lyman B. Smith; 2 fragmentary specimens of ferns from Mexico; 9 plants from Texas; (through Dr. B. L. Robinson, curator) fern from Venezuela; 9 plants (107282; 107393; 107626; 109237; 109820). Exchange.

Mineralogy and Petrography, Department of, Cambridge, Mass.: 3 specimens of minerals—loseyite, mooreite, and fluoborite—from New Jersey (106676). Exchange.

Museum of Comparative Zoölogy, Cambridge, Mass.: 3 flies; skin of a weaver bird new to the Museum collections; 4 crabs, including 2 cotypes; (through Dr. R. V. Chamberlin) collection of marine annelids (88875; 107379; 107411; 110137); 2 skins of birds from Cuba; 44 reptiles and am-

HARVARD UNIVERSITY—Contd.

Museum of Comparative Zoölogy—Continued.

phibians from China; 3 bird skins; 8 bird skins from China and Tibet, including 6 forms new to the Museum collections; 26 bird skins, including 16 species and subspecies new to the Museum collections; skin of a bird—palila—new to the Museum collections; Koa finch; 17 bird skins from China and India, including 11 forms new to the Museum collections (106064; 106929; 107019; 107232; 107740; 107958; 108348; 109900). Exchange.

HATFIELD, W. B., Brooklyn, N. Y.: Skull of a domestic cat (106926).

HAUGHT, OSCAR, Negritos via Talara, Peru: 285 plants from Peru (106498, 106534).

HAUSMAN, Prof. LEON A., New Brunswick, N. J.: 4 mollusks from New Haven, Conn. (107421).

HAWAIIAN SUGAR PLANTERS' ASSOCIATION, Honolulu, Hawaii: 2 beetles, paratypes of a new species, collected in Hawaii (109080).

HAWAII, UNIVERSITY OF, Honolulu (through Dr. J. F. Illingworth): 6 specimens of flies reared from corn flower in Hawaii (107210).

HAY, Dr. O. P., Washington, D. C.: 6 scutes of a glyptodont from Sarasota, Fla. (108877).

HAYCOCK, ARTHUR, Whitby, Bermuda: 10 specimens, 3 species, of oysters from Bermuda (109591).

HAYS BROTHERS, Mary, N. Dak.: 3 fragments of prehistoric pottery from North Dakota (108451).

HEARLE, ERIC. (See under Canadian Government, Department of Agriculture, Entomological Branch, Kamloops, British Columbia.)

HEIKES, VICTOR C. (See under Thomas J. Lynch.)

HEILFURTH, FRITZ, Mexico City, D. F., Mexico: Specimen of Gambel's sparrow (109585).

- HENSON, EDWARD F., Philadelphia, Pa.: Photostatic copies of a print of Henson's "Ariel" with descriptions of this aircraft and Marriott's "Avatar"; also portrait of William Samuel Henson (109136).
- HERRERA, A. L. (See under Mexico, Government of, Dirección de Estudios Biológicos.)
- HERRERA, Prof. FORTUNATO L., Cuzco, Peru: 51 plants from Peru (107219).
- HESS, FRANK L., Washington, D. C.: Specimen of scheelite from Perak, Federated Malay States (108116); described specimen of the mineral samarskite from Petaca, N. Mex. (108672); shell from China (109070).
- HIBBARD, RAYMOND R., Buffalo, N. Y.: Specimen of crinoid salyx from the Middle Devonian of New York (107348). Exchange.
- HICKS, Mrs. FREDERICK C., Port Washington, Long Island, N. Y.: Harmonica lute of the period of approximately 1800-1810 (110101.) Loan.
- HICKS, Miss PEARL, Washington, D. C.: 17 specimens, 4 species, of mollusks from Lake Maxinkuckee (107609).
- HIGGINS, H. C., Keyport, N. J.: 25 specimens, 9 species, of mollusks from the Philippine Islands (107260).
- HIGGINS, J. E. (See under Panama Canal, The, Canal Zone Experiment Gardens.)
- HILL, Dr. G. ALBERT, Wesleyan University, Middletown, Conn.: 10 specimens for the Loeb collection of chemical types (93855).
- HILTON, BILLY, Salem, Va.: 27 stone arrowheads found in a plowed field in Roanoke County, Va. (107718).
- HIORAM, Rev. Brother, Guantanamo, Oriente, Cuba: 6 specimens of ferns from Cuba (106913).
- HITCHCOCK, Prof. A. S. (See under Agriculture, Department of, Bureau of Plant Industry, and C. C. Deam.)
- HITT, Mrs. R. S. R., Washington, D. C.: 5 mounted South American humming birds (108285).
- HOBBS, KENNETH L., Linden, Md.: 3 fishes from California, including type and 2 paratypes (107235).
- HOBBS, KENNETH L., Linden, Md., and J. O. MALONEY, Washington, D. C.: Marine invertebrates collected at Beaufort, N. C. (107238).
- HOFFMAN, Dr. ALFRED, Kew Gardens, N. Y.: 10 specimens for the Loeb collection of chemical types (110562).
- HOFFMAN, JAMES I., Washington, D. C.: Red-shouldered hawk from Pennsylvania (107772).
- HOFFMAN, Dr. WILLIAM A., San Juan, Porto Rico: Collection of insects from the West Indies, mostly taken by the donor (108327).
- HOLT, R. B., Renick, W. Va.: Canine tooth of an extinct peccary (107748).
- HOMBERSLEY, ARCHDEACON A., Port of Spain, Trinidad, British West Indies: 2 specimens of ferns from Trinidad (109163).
- HOOVER Mrs. W. H., Paterson, N. J.: 103 plants from Mount Brukkaros, Southwest Africa (108041).
- HOPKINS, O. P., Washington, D. C.: Magnolia warbler (107237).
- HOPKINS MARINE STATION, Pacific Grove, Calif.: 4 specimens of worms collected by Dr. Walter K. Fisher and Prof. G. E. MacGinitie (110399).
- HOPPIN, Lieut. BUSHROD, Washington, D. C.: Gold-mounted jeweled saber presented to Brig. Gen. John Wynn Davidson by the noncommissioned officers and privates, First Iowa Cavalry, in 1864 (109568). Loan.
- HORN, Dr. WALTHER, Berlin-Dahlem, Germany: 53 specimens of miscellaneous insects (103475); 18 beetles representing 3 species (106934). Exchange.
- HORTICULTURAL COMMISSIONER, Los Angeles, Calif. (through H. M. Armitage): 5 specimens of sawfly larvae from cypress trees in Pasadena, Calif.; 5 flies from California; roach taken from a bunch of bananas in Los Angeles, Calif.; 15

- HORTICULTURAL COMMISSIONER**—Continued.
- beetles reared from the California privet (105927; 106146; 107597; 107879); 10 larvae of flies and 3 beetles from California (107340, 107582).
- HOSTETTER, D. RALPH**, Harrisonburg, Va.: 2 leeches collected by the donor (108875).
- HOUGH, C. C.**, Newkirk, Ohio: 2 pieces of radio apparatus—a fixed spark gap and a silicon detector—used by the donor in an amateur radio installation in 1912 (109247), hand-wrought iron grease lamp and a hand-wrought iron candle snuffer (109514).
- HOUSER, J. S.**, Wooster, Ohio: 2 amphipods (108868).
- HOWARD, PAUL M.** (See under Agriculture, Department of, Plant Quarantine and Control Administration.)
- HOWE, GEORGE S.**, Burlington, Vt.: Pack saddle and saddle pouch said to have belonged to Geronimo (110195).
- HOWES, PAUL G.**, Greenwich, Conn.: 4 shrimps and a land crab and 2 myriapods collected by the donor in British West Indies (105851).
- HRDLIČKA, DR. A.**, Washington, D. C.: 18 photographs of Czechoslovakian art (108273).
- HUBRICK, J. P.**, McCarthy, Alaska: Hoof bone of an extinct species of horse from Alaska (108163).
- HUCKEL, EARLE W.**, Cannes, France: *Histoire de la Parole*, by M. Court de Gebelin, 1776, containing an illustration by M. Gauthier Dagoty, the elder, printed in color from four mezzotint plates, 1 volume; also *Histoire L'Imprimerie*, by Marius Audin, 1929, 2 volumes with many illustrations (107006).
- HUGHES FUND, BRUCE**, Smithsonian Institution: Ram-shaped Sumerian seal from Warka, Babylonia (109578); 4 Babylonian relics (109751).
- HUMPHREY, Maj. Gen. C. F.**, United States Army, Washington, D. C. (through Col. E. H. Humphrey, U. S. Army): Two framed Filipino wood carvings, 2 bolos in scabbards, 2 paintings, and a sword and scabbard presented to General Humphrey by E. N. Seeley in 1907 (106507).
- HUMPHREY, Col. E. H.**, United States Army, Fort Oglethorpe, Ga.: 97 specimens of piercing and slashing weapons (108148). (See also under Maj. Gen. C. F. Humphrey, U. S. Army.)
- HUNT, N. C.**, Salem, Ohio: Sectioned model of a Buckeye steam engine and an early Thompson steam engine indicator (106567).
- HUNTER, GEORGE W., III**, Middletown, Conn.: 2 trematodes (type and paratype) (110187).
- HYMAN, DR. LIBBIE H.**, Chicago, Ill.: Male and female types of hydra (109742).
- ILLINGWORTH, DR. J. F.** (See under Hawaii, University of.)
- ILLINOIS CENTRAL RAILROAD CO.**, Chicago, Ill. (through American Railway Association, Signal Section, New York): An old electric-mechanical slot railway signal (110321).
- IMLER, RALPH**, Bogue, Kans. (through Dr. Frederick V. Coville): 53 plants from Kansas (109496).
- INSTITUT FÜR SCHIFFS UND TROPENKRANKHEITEN**, Hamburg, Germany (through E. Martini): 2 mosquitoes (male and female), and 1 larva (108885).
- INTERIOR, DEPARTMENT OF:**
Indian Irrigation Service (through C. A. Engle): Tooth and piece of femur of an extinct mammal, from "Gibson Terrace," Fort Hall Indian Reservation (107256).
National Park Service, Yellowstone National Park, Yellowstone Park, Wyo.: Skeleton of a moose (105073); (through A. M. Woodbury, Park Naturalist)

INTERIOR, DEPT. OF—Continued.

National Park Service—Contd.

101 plants from Zion National Park, Utah (106305); 196 plants from Kaibab Plateau, Ariz. (107414).

Reclamation, Bureau of: Oil painting of the Boulder Dam site on the Colorado River, by Miss Kate T. Cory (106695). Loan.

United States Geological Survey:

A suite of 49 specimens to represent the bauxite and associated siderite described in United States Geological Survey Bulletin 750-G, by E. F. Burchard (106514); specimen of quartz from Arkansas (106645); three small lots of Pleistocene vertebrate fossils collected by P. S. Smith in Alaska (107591); 2 small lots of Cretaceous vertebrate fossils collected by D. F. Hewett in the manganese deposits in Pierre shale near Chamberlain, S. Dak. (107779); specimen of tourmaline in rosettes in rhyolite from northwest of Sierra Blanco, Tex. (108122); 243 specimens representing the rocks and ores described in a bulletin of the United States Geological Survey, illustrating the deposits of the Greater Helena Mining region of Montana (108281); set of potash drill cores from potash field of New Mexico-Texas, including the type specimens (108673); suite of rock and mineral specimens illustrating the geology and ore deposits of the Stockton-Fairfield quadrangle, Utah (108674); thin sections of rocks from various districts in the western part of the United States (108684); the types and figured specimens of Miocene plants from the Latah formation described by E. W. Berry in United States Geological Survey Professional

INTERIOR, DEPT. OF—Continued.

United States Geological Survey—Continued.

- Paper 154-H (108688); early type of ammeter (109151); collection of Devonian invertebrate fossils comprising the types and figured specimens described by Frank McKim Swartz in United States Geological Survey Professional Paper 158-C (109173); types and figured specimens of Cretaceous and Tertiary fossil plants described by E. W. Berry in several professional papers of the United States Geological Survey (109206); 10 boxes of potash cores from the Texas-New Mexico potash field (109226, deposit); a large concretion from the Cretaceous Eagle Ford formation of Texas, collected by L. W. Stephenson in 1928 (109491); 11 types and figured specimens of ammonites described by J. B. Reeside, jr. (109805); Pleistocene fossils from 7 localities in the Crowley Ridge and Grand Prairie region of Arkansas (110088).
- IORGA, Dr. N., Washington, D. C.: 3 Roumanian rugs dating from the end of the 18th century (109113).
- IOWA WESLEYAN COLLEGE, Mount Pleasant, Iowa (through Prof. H. E. Jaques): 13 files (109442).
- IRVING, F. N., Miami, Fla.: 2 plants from Florida (106760).
- ISHAM, CHARLES S., New York City: Collection of about 40 ethnological specimens and 20 photographs from western Tibet (106631).
- ISHIKAWA, Dr. C., Tokyo, Japan: 46 teeth of a male sperm whale (107631).
- ISRAELSKY, MERLE C. (See under Arkansas Geological Survey, Little Rock, Ark., and Louisiana Gas & Coal Co.)
- JACKSON, Mrs. HARTLEY H. T., Chevy Chase, Md.: Ruby-throated humming bird from Maryland (106302).

- JACOT, Dr. ARTHUR, Tsinan, Sung, China: Approximately 108 specimens of Foraminifera, including types from the coast of Shantung, collected by the donor (107889); approximately 1,000 specimens of copepods from Da Ming Hu (Lake) inside City Wall, Tsinan, Sung, China (108364). (See also under Shantung Christian University.)
- JAHN, ALBIN, Plauen i V., Germany: 2 mineral specimens—manganocalcite and a cut gem of andalusite (109810). Exchange.
- JAQUES, Miss BERTHA E. (See under Miss Elizabeth Keith.)
- JAQUES, Prof. H. E. (See under Iowa Wesleyan College.)
- JARDIN BOTANICO, Rio de Janeiro, Brazil (through Miss Maria C. Bandeira): 157 plants (106113). Exchange.
- JARDIN BOTANIQUE PRINCIPAL, Leningrad, Union of Socialist Soviet Republics in Europe: 61 ferns from Mexico, Colombia, and Venezuela; 102 plants from South America and Mexico, and 38 South American plants (105427, 106596, 109888). Exchange.
- JARMAN, Mrs. JAMES HARRY, Washington, D. C.: Budgerygah parakeet (106697).
- JEANNEL, Dr. R., Paris, France (through H. S. Barber): 355 beetles, 12 of which are types or cotypes, representing 122 species (110381).
- JENKINS, C. FRANCIS, Washington, D. C.: 3 radio machines—radio still picture camera; radio movies receiver, and radio weather map receiver (105044).
- JENNINGS, Prof. O. E. (See under Carnegie Museum, Department of Botany.)
- JENNISON, FRANK J., Savannah, Ga.: Skin of boat-tailed grackle, and 6 skins of herons, representing 3 species, all from Georgia (107392, 110390).
- JOHNS-MANVILLE CORPORATION, New York City: 5 slabs representing various grades of travertine from Florida (103742).
- JOHNSON, C. W., Boston, Mass.: 2 specimens of flies (106265).
- JOHNSON, FRANK, New York City: 4 insects (106905).
- JOHNSON, JAMES SYDNEY, San Francisco, Calif.: A small book entitled "Nocturne in St. Gauden's" by the donor, printed by the Windsor Press in 1929 (107107).
- JOHNSON, Col. JOHN OTTO. (See under Miss Mary Perry Brown.)
- JOHNSTON, Dr. JOHN R. (See under United Fruit Co.)
- JOHNSTON, W. D., Jr., Washington, D. C.: Specimen of blind fish from a well in Alabama (108038).
- JONES, JOHN C., Washington, D. C.: 3 birds from the District of Columbia (106916); sandpiper (106972); 2 sanderlings and a little blue heron (107003); skeleton of a domestic cat (107130); 2 birds—a short-eared owl and a gold finch (108337); carapace of an armadillo from Panama, and an opossum from the District of Columbia (109055); skeleton of a bluebird from Maryland (109524); skeleton of a scarlet tanager from the District of Columbia (110439).
- JONES, Miss ROBERTA, Washington, D. C.: Plant from Georgia (106245).
- JONES, STOCKTON W., Washington, D. C.: 40 handmade nails removed from an old wood chest; cut-glass berry bowl, old English, of about the period of 1820; 3 pairs of old spectacles and the shank of a pearl shell hook (106673; 107754; 109081).
- JONES, Mrs. STOCKTON W., Washington, D. C.: Shell inlaid card case, Italian, of about the period 1850 (107755).
- JONES, WILLIAM L., Baltimore, Md. (through Dr. E. W. Berry): Skull of a fossil cetacean (108925).

- JORDAN, ARLAND**, Jordan's Landing, above Tanana, Alaska: Stone ax from 35 miles above Tanana (107113).
- JORDAN, Dr. K.** (See under Agriculture, Department of, Bureau of Biological Survey.)
- JORDAN, W. E.**, Washington, D. C.: Fossil shell from the Eocene, Oxen Hill, Md. (106438).
- JOSEPH, ELLIS S.**, New York City: 6 Regent parrots from Australia (106665).
- JUDGE, FRED, F. R. P. S.** Hastings, England: 34 bromoil transfers and 16 bromoil lithographs for special exhibition from September 10 to 30, 1930 (106950). Loan.
- KANSAS, UNIVERSITY OF**, Lawrence, Kans.: 31 beetles (109062).
- KARLOVICH, JOHN**, Zeigler, Ill.: 3 insects from Illinois (106068).
- KEARNEY, Dr. T. H.** (See under Agriculture, Department of, Bureau of Plant Industry.)
- KEATING, PAUL**, Holokachakat, Shageluk Slough, Alaska: Eskimo stone knife (107117).
- KEECH, Miss S. P.**, Washington, D. C.: White ostrich feather cape and plume from Cape Town, Union of South Africa (110340).
- KEIDEL, Dr. GEORGE C.** (See under Miss Florence Garber.)
- KEISER, W. G.**, Quartzite, Ariz.: Specimen of petrified wood and 2 specimens of lignitized wood (107598).
- KEITH, Miss ELIZABETH**, Care, Miss Bertha E. Jaques, Chicago, Ill.: 39 prints in color by Miss Keith of England, depicting scenes and customs in Korea, China, and Manila, Philippine Islands, 34 being wood blocks and the others etchings, for special exhibition from October 7 to November 3, 1929 (107230). Loan.
- KELEHER, EDITH R.**, Washington, D. C.: 14 fresh-water medusae collected by the donor at Black Pond, Va. (108042).
- KELLERS, Lieut. H. C.**, United States Navy Medical Corps, Philadelphia, Pa.: Collection of reptiles, 8 crabs, a bat, a spider, scorpions, and insects from Nicaragua (108417); still used for making contraband liquor, Cusuca, in the mountains of the northern part of Matagalpa, Nicaragua (109432). (See also under Navy Department.)
- KELLOGG, Dr. REMINGTON**, Washington, D. C.: White-footed mouse and a weasel from Rock Creek Park (108442, 109873).
- KENNAN, Mrs. GEORGE**, Medina, N. Y.: 52 Oriental weapons, 7 photographs of Oriental arms and armor, and a small table screen of carved mammoth ivory bought in Yakutat, eastern Siberia in 1885 (109552, 110102, 110115).
- KENT, A. ATWATER**, Philadelphia, Pa.: Booklet describing the Atwater Kent spark generator of 1907 (109741).
- KENTUCKY GEOLOGICAL SURVEY**, Lexington, Ky. (through Agriculture, U. S. Department of, Bureau of Biological Survey): Collection comprising reptiles, amphibians, insects, fishes, mollusks, and marine invertebrates, collected in the Mammoth Cave region of Kentucky (107760).
- KENTUCKY, UNIVERSITY OF**, Agricultural Experiment Station, Lexington, Ky.: Plant from Kentucky (106087).
- KERATOL CO., THE**, Newark, N. J. (through F. L. Ford, sales manager): 7 samples of "Keratol Levant" bookbinding cloth (109624).
- KEYS, J. W.**, Washington, D. C.: 4 specimens of fresh-water jelly fish from Great Falls, collected by the donor (107106).
- KEYSER, E. W.**, Washington, D. C.: 35 ethnological specimens and a skein of abaca fiber from the Philippines (108167).
- KILIAN, J. G.**, Ridgeway, N. C.: Specimen comb of crimson clover honey, produced in Warren County, N. C. (106982).

- KIMBER, Miss NATALIE B., Philadelphia, Pa.: Fern from Arizona, and 11 plants from North and South Carolina (107143; 109434).
- KIMBROUGH, J. W., Victoria, Tex.: Indian skull found in an excavation at Bloomington, Tex. (108724).
- KING, W. E., Blue Jay, W. Va.: 2 fossil plants from a coal mine near Blue Jay (107727).
- KINGMAN, CHESTER SUMNER (through Brooklyn Trust Co., Brooklyn, N. Y.): Gold open-face Swiss watch made by Charles Mehlhlin about 1903, made up of 1,200 parts, with perpetual calendar, split second, minute register, and time strike, the dial arrangement including the month of the year, day of the month, day of the week, and the moon's phase (89230). Bequest.
- KINSEY, Prof. ALFRED C., Bloomington, Ind.: 614 insects and 637 galls (109159).
- KIRBY, Prof. RICHARD S., New Haven, Conn.: Surveying instrument of about 1868 (110078).
- KIRMSE-SMITH, Mrs., Skagway, Alaska: Closed socket harpoon head of ivory (106133).
- KLAUBER, L. M., San Diego, Calif.: 2 rattlesnakes, one a paratype of a new subspecies (104365).
- KLEIN, EUGENE, Philadelphia, Pa. (through Mr. W. Irving Glover): Envelope transported with the first official round-the-world air mail on the German airship *Graf Zeppelin* from Lakehurst, N. J., to Lakehurst, N. J., from August 7 to August 29, 1929 (107142).
- KLOTZBACH, GLENN, Washington, D. C.: Rib of a fossil sirenian from Wareheims Marine Railway, Compton, Md. (106731).
- KNAPPEN, Mrs. NELLIE C., Washington, D. C.: 4 ferns from Florida (108433).
- KNECHTEL, M. M., Ottawa, Ontario, Canada: 11 specimens, 5 species, of Tertiary shells from the State of Zamora, Venezuela (110122).
- KNITBAC SERVICE COMPANY (INC.), THE, New York City: The original working model of a machine for repairing knitted fabrics, representing Patent No. 1708675, granted to Samuel and William Leavin; and 1 present-day commercial Knitbac machine (110555). Deposit.
- KNIGHT, F. R., Ashburn, Ga.: 2 beetles belonging to the family Cassidinae, from Georgia, and 2 flies (larvae) (106067, 107080).
- KNIGHT, F. R. & CO., Ashburn, Ga.: Box-turtle from Georgia (107357).
- KNIGHT, Dr. J. BROOKES, New Haven, Conn. (through Dr. E. O. Ulrich): Approximately 200 specimens of conodonts from the Pennsylvanian rocks of Illinois (108432).
- KNOWLTON, GEORGE F. (See under Utah State Agricultural College.)
- KNULL, J. N., 143 specimens of undetermined miscellaneous Hymenoptera (107565); (through W. S. Fisher) 3 beetles (107607).
- KOLOBOVA, Madam A. N., Poltava, Union of Socialist Soviet Republics (through R. A. St. George, Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C.): 60 specimens of beetle larvae representing 11 species (106417). Exchange.
- KOPPITZ, Prof. RUDOLF, New York City (through Joseph M. Bing): 55 pictorial prints for special exhibition during May, 1930 (109846). Loan.
- KRIEGER, PHIL., New York City: 4 specimens of minerals from Arizona (108218).
- KRYGER, Dr. J. P., Gentofte, Denmark (through A. B. Gahan): 212 slides of North American insects (106659).
- KURTZ, Hon. J. BANKS, Washington, D. C.: A specimen representing the sand-filled burrows of a worm, of Silurian time, from near Mount Union, Pa. (107586).
- KUSTER, KIMBER C. (See under Michigan, University of, Department of Zoology.)

- KYLE, J. A. (See under Clay-Adams Co.)
- LAMB, Dr. ISABEL H., Poplar Hill, Md.: Pottery and textile specimens (110126).
- LAMBERT, JACOB, Ogden, Utah: 9 glass imitations of projectile points; 1 lot of glass arrowheads, blades, etc. (manufactured), 1 lot of obsidian projectile points (manufactured), 5 tools used by Mr. Lambert in chipping the specimens, chert arrowhead of Indian manufacture, Utah, locality unknown (110552).
- LATCHFORD, Judge F. P., Toronto, Canada: 7 specimens of fresh-water mussel from Lake Nipissing, Ontario (108164).
- LATHAM, Roy, Orient, Long Island, N. Y.: 3 isopods and 7 barnacles from Long Island, collected by the donor (109050).
- DE LAUBENFELS, M. W., Pasadena, Calif.: Approximately 176 specimens, 64 species, of sponges from California, including 52 types and 19 paratypes, collected in part by the donor (106756).
- LAUSANNE, UNIVERSITÉ DE, Laboratoire de Botanique, Lausanne, Switzerland: 190 plants from Argentina (108377); (through Dr. E. Wilczek, director) 50 plants from Hispaniola (109219). Exchange.
- LAW, J. EUGENE, Altadena, Calif., and Maj. ALLAN BROOKS, Okanagan Landing, British Columbia, Canada: Type of a new genus and species of blackbird from Arizona (108170).
- LAWRENCE, H., Anvik, Alaska (through Dr. J. W. Chapman): Pottery fragments, bone and stone implements from Bonasila, Alaska (108648).
- LAYTON, Miss FLORENCE, Washington, D. C.: Tlinkit Indian basket from Alaska (107567).
- LEACH, E. R., Oakland, Calif.; 13 specimens of sulphide ores from the Island Mountain Copper Mine, Trinity County, Calif. (109749).
- LEDIG, PAUL G., Huancayo, Peru: 57 plants from Peru (97317).
- LEE, E. J., Minneapolis, Minn.: 50 study samples of Australian woods (109082); sample of pine lumber showing abnormal growth (109753); 24 study samples of Andaman woods (109902). Exchange.
- LEE, HENRY E., Rapid City, S. Dak.: Small collection of fossil footprints from Reva Gap, Slim Buttes, Harding County, S. Dak. (109105).
- LEE, Mrs. JEROME A., Chevy Chase, D. C.: 24 old Venetian glass bowls and plates (12 of each) (110170). Loan.
- LEIGHTON, J. HAROLD, F. R. P. S., Bradford, England: 58 pictorial prints for special exhibition during the months of February and March, 1930 (108121, loan); 4 gum prints—"Rain Clouds," "Old Roshenburg," "In Canterbury Cathedral," and "Hurstmonceaux Castle" (109721).
- L'ENFANT MEMORIAL, NATIONAL COMMITTEE FOR THE, Washington, D. C.: Plaster model of a proposed memorial to Maj. Pierre Charles L'Enfant, designed by W. Clarke Noble (109773). Loan.
- LENG, C. W., Staten Island, N. Y. (through H. S. Barber): Beetle from Punta Arenas, Chile (107625).
- LEON, Rev. Brother, Havana, Cuba: Fern from Cuba (107595).
- LEONARD, EMERY C., Washington, D. C.: 4 plants from Maryland (108401).
- LEWIS, A. NELSON, New York City: Evening dress worn by Anne Heyward Gibbons at a reception given to President George Washington at Savannah, Ga., during his southern tour in 1791 (105589).
- LIGGETT, Dr. HAROLD. (See under New York University, University and Bellevue Hospital Medical School.)
- LILLY, WILLIAM, New York City: Collection of miniature Hindu ivory carvings, and specimen of insect (106532, 107875).

- LINK, FRANCIS L., Jolo, Sulu, P. I.: 168 specimens of land, fresh-water and marine shells from the Philippine Islands, also 71 specimens of land, fresh-water, and marine shells from the islands (106235, 109127).
- LINTON, Prof. EDWIN, Philadelphia, Pa.: 110 slides, 20 species, of trematodes from Woods Hole region (108896).
- LLOYD, Dr. J. T., Cincinnati, Ohio: Collection of scientific and technical papers relating to materia medica, pharmacy, and the Electric School of Medicine, by Dr. John Uri Lloyd, father of the donor (106741).
- LODING, H. P., Mobile, Ala. (through Mrs. Doris H. Blake): 3 beetles new to the Museum collection (106693).
- LOFQUIST, Capt. FREDERICK, United States Army, Fort H. G. Wright, N. Y.: A valve of a mussel showing interesting pathologic condition from Fishers Island, N. Y. (109727).
- LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE, London, England (through Prof. P. A. Buxton): 10 flies (108043).
- LONG, THE MISSES, Washington, D. C. (through Miss Edith Long): 2 cut-glass lemonade glasses and a silver card case (106910). Loan.
- LOPEZ, A. W. (See under Philippine Sugar Association.)
- LOS ANGELES MUSEUM, Los Angeles, Calif. (through L. J. Muchmore): Insect (107643).
- LOUISIANA GAS & COAL CO., Shreveport, La. (through Dr. T. W. Stanton and Merle C. Israelsky): Specimen of a Lower Cretaceous fossil from the Triangle Drilling Co.'s Kilpatrick No. 1 well, Claiborne Parish, La. (109925).
- LOUISIANA STATE UNIVERSITY, Department of Zoology, Baton Rouge, La. (through Miss Ellinor H. Behre, associate professor of zoology): 27 crustaceans taken at Grand Isle, La. (104720).
- LOUNSBERRY, Miss NELL, Newport Beach, Calif.: 2 shells from California, and 2 sea urchins (108895, 109549).
- LOWE, H. N., Long Beach, Calif.: 7 crabs from Long Beach, Calif. (107417).
- LUEDERWALDT, Dr. H. (See under Museu Paulista, Sao Paulo, Brazil.)
- LUNDELL, C. L., Dallas, Tex.: 72 plants from British Honduras (106358, 108703).
- LYNCH, JAMES E., Berkeley, Calif.: 6 microscopic slides comprising the types, paratypes, and genotype of 4 new species and a new genus of ciliate protozoa from the digestive tract of sea urchins (105957); 3 crayfish (109732).
- LYNCH, THOMAS J., San Francisco, Calif. (through Victor C. Heikes): Specimen of gold quartz in limestone from Manhattan, Nev. (109838).
- LYON, Dr. HAROLD L., Honolulu, Hawaii: 3 ferns from the Hawaiian Islands (108338). Exchange.
- LYON, Dr. M. W., South Bend, Ind.: 2 shells from Furnessville Blowout, Dunes of Porter County, Ind. (108915). (See also under Henry Duncker, C. S. Robbins, and E. B. Williamson.)
- MAAG, (INC.), EDWARD, New York City: 28 samples of upholstery and drapery trimmings (110554).
- MAAZ, T. BRICENO, Los Teques, Venezuela: 3 beetles from Venezuela (110073).
- MACCALLUM, Dr. G. A., Baltimore, Md.: Collection of helminths, mammals, birds, fish, mollusks, insects, echinoderms, and marine invertebrates (108036).
- MACCURDY, Dr. GEORGE GRANT. (See under American School of Prehistoric Research in Europe, New Haven, Conn.)
- MCATEE, W. L., Washington, D. C.: 13 plants from Virginia (107777).
- MCBURNEY, JOHN, Chevy Chase, Md.: Black vulture from Maryland (108702).

- McCLURE, JAMES S.**, Millville, N. J.: Folding 2-foot carpenter's rule of the period of about 1850 (108110).
- McCORMICK, LEANDER JAMES, THE FAMILY OF**, Chicago, Ill. (through Robert Hall McCormick): 8 models of labor-saving farm machinery invented and constructed between the years 1829 and 1835 by Robert McCormick, of Walnut Grove, Rockbridge County, Va. (108876).
- McCORMICK, ROBERT.** (See under Leander James McCormick, the Family of.)
- McCULLOUGH, Dr. ROBERT C.**, Washington, D. C.: Trunk section of dogwood (106771).
- MACGINITIE, Prof. G. E.**, Pacific Grove, Calif.: Fragment of a worm-tube, 3 worms, 5 isopods, and approximately 75 copepods (108156).
- McGREGOR, H.**, Fort Yukon, Alaska: Black stone Eskimo knife from close to Demarcation point, Arctic coast (107129).
- McGREGOR, R. C.** (See under Dr. C. F. Baker, and Philippine Government, Bureau of Science, Manila, P. I.)
- McGUIRE, Miss MARY M.**, New York City: Collection of ethnological and historical objects including 5 pieces of china used by President James Madison in the White House (108341); Zuni pendants of turquoise-like stone (108914).
- McINTOSH, Prof. A. C.**, Rapid City, S. Dak.: 4 amphipods, 1 crayfish, 4 specimens, 2 species, of land and fresh-water mollusks from South Dakota (109401); 6 specimens of crayfish some of them covered with colonial protozoans; also 2 leaches (110055).
- McMILLIN, HARVEY C.** (See under Commerce, Department of, Bureau of Fisheries.)
- McPHAIL, E. I.**, Buffalo, N. Y.: 4 carbon prints, namely "The Power of Niagara," "A Nocturne," "A Fantasy," and "A Lonely Coast"
- McPHAIL, E. I.—Continued.** (108650); pictorial photograph, a self portrait taken in a mountain cabin (109908).
- MALLOCH, J. R.**, Washington, D. C.: 3 specimens of flies, representing 2 species from Australia, new to the Museum collection (106943); 4 flies representing 3 species (1 specimen is a paratype of a species), from Australia (106977); dipterous larvae collected in Apia, Upolu, Samoan Islands (109447); 6 flies, 4 species, 2 of them paratypes (109768); 2 flies representing species new to the Museum collections (109872); 2 flies, genotypes of 2 genera, both compared with type and one new to the Museum collections (109924).
- MALONEY, J. O.** (See under Kenneth L. Hobbs.)
- MANTER, Prof. H. W.**, Lincoln, Nebr.: Types of 2 parasitic worms (108107).
- MARIE-VICTORIN, Prof.** (See under Montreal, Université de.)
- MARKS, PETER**, Tanana, Alaska: Stone double pick (107110).
- MARRION, A. H.**, Victoria, British Columbia, Canada: A cricket from British Columbia, Canada (107370).
- MARRIOTT, JAMES**, Ogden, Utah: 3 stone implements found on the donor's farm about 10 miles northwest of Ogden (110441).
- MARSHALL, BYRON C.**, Imboden, Ark.: Parasitic worms taken from 3-toed box turtle at Imboden, Ark. (106085); 3 scorpions from San Marcos, Tex. (106251); 4 grasshoppers (108637); 4 species of parasitic worms (109060).
- MARSHALL, Dr. C. E.**, Livingston, Mont.: Small collection of fossil material from 30 miles south of Livingston, Mont. (106028).
- MARSHALL, ERNEST B.**, Laurel, Md.: Wood thrush from Maryland (106510); 5 specimens of rusty blackbird (108128); skins and skulls of a shrew, 2 pine mice, and a meadow mouse; and skulls of a weasel, 3 minks, and 2 skunks (108443).

- MARSHALL FIELD & CO., Chicago, Ill.: 3 series, totaling 26 specimens, of printed cotton drapery fabrics, including the sources of inspiration for the designs (108317).
- MARSHALL, GUY A. K. (See under British Government, Imperial Bureau of Entomology.)
- MARSHALL, WILLIAM B. (See under Smithsonian Institution, National Museum, collected by members of the staff.)
- MARTIN, GEORGE CASTOR, Rockport, Tex.: Collection of arrowheads and postherds from the vicinity of Rockport, Tex. (106252).
- MARTIN, HENRY D., Mansfield, Mass.: Separator blade (U. S. Patent No. 566205) for separating the spindles of spinning and twisting frames; a sample thread guide, and a full-size model of a stop motion device for twisting frame, all invented by the donor (110144).
- MARTIN, MISS JANET, Worcester, Mass.: A Chelsea plate and 2 Sandwich glass saucers (106722).
- MARTINI, E. (See under Institut für Schiffs- und Tropenkrankheiten, Hamburg, Germany.)
- MARTZ, HARRY E., New York City: 3 bank bills of the period of the Civil War (107011).
- MARYE, WILLIAM B., Upper Falls, Md.: Reworked fragment of a bannerstone (106415); 7 stone objects from various sites in Maryland (107512). (See also under David A. Harlan.)
- MARYLAND GEOLOGICAL SURVEY, Baltimore, Md. (through Dr. E. W. Berry): Carapace of a fossil turtle from Aquia Creek, Va. (107720). Deposit.
- MASARYK UNIVERSITY, Botanical Institute of, Brno, Czechoslovakia: 100 plants (Century V., Flora Exsiccata Republicae Bohemicae Slovenicae (108880). Exchange.
- MASON, MRS. WILLOUGHBY, Fort Yukon, Alaska: Old decorated wooden ladle from Whitestone River, tributary of the Porcupine (107112).
- MASON, MRS. WILLOUGHBY—Contd. 8 plants from Alaska (109596).
- MATHER, JAMES INCREASE, JR., New York City: 2 human skulls from Palatka (109777).
- MAULME, MRS. CARLOTA REINBERG, Guayaquil, Ecuador: 300 butterflies from South America, collected by Mr. Alfred Cartwright (107707).
- MAURY, DR. CARLOTTA J. (See under Caribbean Petroleum Co.).
- MAYNARD, ROSS H., East Middlebury, Vt.: Book entitled "An Early American Queen Anne Escritoire"—an example of fine printing (108142).
- MELANDER, PROF. A. L., New York City: 2 specimens of flies (109787).
- MELL, C. D., New York City: 126 plants from Mexico (109876, 110092).
- MELZER, JAMES P., Milford, N. H. (through Agriculture, U. S. Department of, Bureau of Biological Survey). Leg bone of a hawk, healed from a former break (110344).
- MENDEL, EDWARD, Hollywood, Calif.: 3 specimens of cacti from Mexico (106706).
- MENDEZ, ALEJANDRO, Director, National Museum of Panama, Panama: 2 specimens of corals, and 1 lot of barnacles from Panama (101873).
- MERCK & CO. (INC.), Rahway, N. J.: 116 specimens of medicinal chemicals (109069).
- MEREDITH, Capt. R. L., Boonton, N. J.: Specimen of Richardson's pigeon hawk from Alberta (107594). Exchange.
- MERRIAM, Prof. KENNETH G. (See under Worcester Polytechnic Institute.)
- MERRILL, Dr. E. D. (See under California, University of, Department of Botany.)
- MERRILL, Miss GETRUDE, Cherrydale, Va.: Specimen of fruit of baobab, from Portuguese East Africa; 3 decorated brass bracelets, a bark blanket and a bark bag from the Ndau tribe of Portuguese East Africa and South Rhodesia, and

MERRILL, Miss GERTRUDE—Contd.

specimens of white ants from Mount Silinda, South Rhodesia, Africa (106521).

MEXICO, GOVERNMENT OF
(through Secretaría de Educación Pública), Mexico, D. F., Mexico: 3 archeological stones with frescoes, recovered from the Temple of the Warriors at Chichen Itza, Yucatan (108370, deposit).

Dirección de Estudios Biológicos, Chapultepec, Mexico, D. F., Mexico (through Dr. A. L. Herrera, director): Marine invertebrates, including 40 shrimp, 4 crabs, 5 alcyonarians, 2 sponges; a specimen of marine mollusk, and 3 lizards from Sinaloa, and Islas Marias (98474); marine invertebrates, including 90 crustaceans, 3 lots of worms, 2 lots of tunicates, 3 lots of coelenterates, 4 specimens of algae and 5 fishes from Mexico (98750); 2 alcyonarians (107252).

Oficina Federal para la Defensa Agrícola, San Jacinto, D. F., Mexico (through Dr. Alfonso Dampf): 2 flies from Mexico (107785).

MIAMI UNIVERSITY, Department of Botany, Oxford, Ohio: 32 specimens of lichens (106227). Exchange.**MICHIGAN STATE COLLEGE**, East Lansing, Mich. (through Prof. R. H. Pettit): 2 flies reared from a mint field in Mentha, Michigan 109098); 10 larvæ and 31 pupal skins of flies (110066).**MICHIGAN, UNIVERSITY OF**, Ann Arbor, Mich.: 31 specimens of ferns from Honduras; model of a fossil reptile; (through Dr. E. C. Case) 24 fossil teeth from the Triassic of Texas (107215; 108124; 108721, exchange); (through Kimber C. Kuster) 4 flies from Michigan; (through Prof. F. M. Gaige) 9 flies taken from a moose in Michigan; (through**MICHIGAN, UNIVERSITY OF—Con.**

Edwin P. Creaser) 6 specimens of phyllopod crustaceans, paratypes of a new species described by the donor, collected in a pond in Portland, Oreg., by L. E. Griffin (107341; 108339; 108882).

MIDDLETON, WILLIAM. (See under H. M. Chase.)

MIEL, Miss NINA M., Wayne, Pa.: Certificate, dated February 24, 1868, for five shares of stock in the Aerial Steam Navigation Co., San Francisco, Calif., purchased by the donor's father, and an original letter of Frederick Marriott, dated May 25, 1881, an inventor and organizer of the original Steam Navigation Co (107103).

MILES, Maj. SHERMAN, United States Army, Fort Shafter, Hawaii, and Mrs. Sam Reber, New York City: Two Spanish plaques of the period of the Spanish-American War (109031). Loan.

MILLER, ARTHUR H., Seattle, Wash.: 2 ivory snow knives from Koggiung, Bristol Bay, Alaska (107433).

MILLER, D. B., Lima, Ohio: Sample of flax fiber produced in Shelby County, Ohio, between 1830 and 1845, from fully ripened flax plants which were grown for seed production (106946).

MILLER, GERRIT, S. Jr., Washington, D. C.: Ctenophore from Shadyside, West River, Chesapeake Bay, Md., collected by the donor (106513); 65 plants from Europe (109145); bat from Washington, D. C. (110373).

MILLS, JAMES W., Piedmont Camp, Linden, Va.: Nest and egg of ruby-throated humming bird (108082).

MILWAUKEE PUBLIC MUSEUM, Milwaukee, Wis.: Collection of Cambrian and Ozarkian invertebrate fossils from the Upper Mississippi Valley (109548). Exchange.

MINNEAPOLIS PUBLIC LIBRARY, Minneapolis, Minn.: 1532 bird skins from the Philippine Islands, including a number of types (107669).

- MINNESOTA, UNIVERSITY OF, Minneapolis, Minn. (through Prof. William A. Riley) : Type specimen of a trematode (109100).
- MISSISSIPPI COLLEGE, Clinton, Miss. (through Prof. W. O. Sadler) : 8 insects (106729).
- MISSISSIPPI, STATE PLANT BOARD OF, Agricultural and Mechanical College, Mississippi (through Prof. R. W. Harned) : Scorpion from Mississippi collected by F. A. Wright (107854).
- MITCHELL, J. D., ESTATE OF. (See under Agriculture, Department of, Plant Quarantine and Control Administration.)
- MITCHELL, Prof. T. B. (See under North Carolina College of Agriculture and Engineering.)
- MOHL, J. M., Washington, D. C. : Northern flicker from Washington, D. C. (106440).
- MOHUN, Mrs. R. DORSEY, Washington, D. C. : Medicine chest used by Mr. Mohun on his various expeditions in Africa from 1880-1910 (109433).
- MOLLOY CO., THE DAVID J., Chicago, Ill. (through P. E. Donker) : 2 examples of book covers (109423).
- MONTREAL, UNIVERSITÉ DE, Laboratoire de Botanique, Montreal, Canada (through Prof. Marie-Victorin) : 125 plants from Quebec (110302). Exchange.
- MOORE, BENSON B., Washington, D. C. : 30 drypoints for special exhibition from January 27 to February 23, 1930 (108651, loan) ; a proof in black and white, a celluloid color plate, and a finished print in colors showing the donor's method of printing etchings in color (109225).
- MOORE, P. D., Okotoks, Alberta, Canada (through Dr. J. B. Reeside, jr.) : 250 specimens of Jurassic fossils from the Fernie formation of Alberta, Canada (106517).
- MOORE, Dr. RILEY D., Washington, D. C. (See under Dr. Arthur Still Craig, Dr. W. A. Rae, and Mrs. Paul R. Smith.)
- MORAES, Dr. LUCIANO JACQUES DE. (See under Serviço Geológico e Mineralógico do Brazil, Rio de Janeiro, Brazil.)
- MORGAN, BRENT M., Washington, D. C. : Herring gull, red-legged black duck, a ring-necked duck, and a European wigeon from Virginia (108351, 108352) ; ring-billed gull and an American merganser (108362).
- MORRISON, Dr. HAROLD. (See under Agriculture, Department of, Bureau of Entomology.)
- MORTON, C. V., Washington, D. C. : 363 plants collected by the donor in Virginia, West Virginia, and North Carolina (110556).
- MOSELEY, Prof. E. L., Bowling Green, Ohio : 199 plants mainly from Ohio (104499).
- MOSS, Rev. A. MILES, Para, Brazil : 65 plants (108384).
- MOTION PICTURE PRODUCERS AND DISTRIBUTORS OF AMERICA (INC.). (See under F. J. Rembusch.)
- MOWBRAY, LOUIS L., New York City : 2 specimens of spiny lobster from Florida, collected by the donor (93275).
- MUCHMORE, L. J. (See under Los Angeles Museum, Los Angeles, Calif.)
- MULFORD CO., H. K., Philadelphia, Pa. : 12 specimens of antibacterial and antivenomous serums for addition to the collection of medicines obtained from the animal kingdom (107349) ; exhibit illustrating the manufacture and use of antsnakebite serum (108676).
- MUNRO, GEORGE C., Lanai City, T. H. (through E. L. Caum) : Japanese quail (110347).
- MUNSON, F. I., Halibut Cove, Alaska : Crab from Alaska (108396).
- MURIE, O. J., Jackson, Wyo. : 2 anatomical specimens (110106).
- MUSÉE PHYSIOGRAPHIQUE Académie Polonaise des Sciences, Cracovie, Poland : 4 plants (108596). Exchange.

MUSEO NACIONAL, San Jose, Costa Rica (through Prof. J. Fid Tristan): 4 insects from Costa Rica (110131).

MUSEU PAULISTA, Sao Paulo, Brazil (through Dr. H. Leuderwaldt): 14 fresh-water ostracods from Brazil (109733).

MUSEUM NATIONAL D'HISTOIRE NATURELLE, Paris, France (through Dr. J. Cottreau): 18 specimens, 9 species, of fossil echinoids and 26 specimens, 18 species, of Mesozoic and Cenozoic shells from France (108687); 4 bird skins from various localities (109750). Exchange.

MYERS, FRANK J., Ventnor, N. J.: 113 microscopic slide mounts of rotifers, comprising additions and replacements made by the donor to the national collections (110112).

NATIONAL CHILD WELFARE ASSOCIATION (INC.), New York City: A series of 10 colored charts emphasizing phases of child welfare (109844).

NATIONAL COMMITTEE ON WOOD UTILIZATION, Washington, D. C.: Model of a Neafie rail joint, a D., L. & W. standard tie plate, and a screw spike (110070).

NATIONAL GEOGRAPHIC SOCIETY, Washington, D. C.: Alaskan plants collected by Prof. T. A. Jaggard (103635); 7,500 plants, 708 birds, 6 mammals, and a fossil specimen from Szechwan and neighboring districts of western China collected by Dr. Joseph F. Rock (109577); 400 miscellaneous insects, 2 mollusks, 5 mammals, 833 plants, 104 reptiles and amphibians, 288 skins and 26 alcoholic birds, also 5 crabs, collected in Venezuela by Ernest G. Holt (109807).

NATIONAL MUSEUM, South Yarra, Melbourne, Australia (through F. J. Rae, Government botanist): 68 plants from Australia (109593). Exchange.

NATIONAL RESEARCH INSTITUTE, Metropolitan Museum of Natural History, Nanking, China

NATIONAL RESEARCH INSTITUTE—Continued.

(through R. C. Ching): 19 plants from China (109411); 1227 plants from Kwangsi, China (110385). Exchange.

NATIONAL TUBERCULOSIS ASSOCIATION, New York City: Strip film entitled "Consequences" for use in the automatic delineascope to supplement the tuberculosis exhibit (107775).

NATURHISTORISKA RIKSMUSEET, Stockholm, Sweden: 50 lichens from South America (106297); fern from French Guiana (107383); 200 plants collected in Cuba by Dr. E. L. Ekman (108332); 727 plants chiefly from tropical America (108642). Exchange.

NAVY DEPARTMENT: Eclipse expedition to Ilo Ilo, 1929 (through Lieut. H. C. Kellers, M. C., U. S. Navy): Large collection of natural history specimens comprising marine invertebrates, corals, mollusks, reptiles, amphibians, birds, mammals, fishes, insects, arachnids, plants, echinoderms, also human skulls and fossils (99399).

NEBRASKA UNIVERSITY OF, Lincoln, Nebr. (through Prof. Irving H. Blake): 5 specimens of flies (106090).

NELSON, E. (See under Dr. R. W. Brown.)

NELSON, Dr. E. W., Washington, D. C.: 16 coon skins with skulls, and 2 rat skins with skulls (109161). (See also under A. M. Hansen.)

NEVERMANN, FERD., San Jose, Costa Rica: 70 specimens of beetles, representing 13 species, 6 of which are represented by paratypes of new ones (109172).

NEW DEPARTURE MANUFACTURING CO., THE, Bristol, Conn.: Collection of photographs illustrating some famous automobiles and their drivers (109905).

NEWELL, Miss ELLEN M., Coconut Grove, Fla.: Beetle from Florida (108322).

- NEW HAVEN CLOCK CO., New Haven, Conn.: 2 electric clocks and 1 electric clock movement (109088).
- NEW JERSEY ZINC SALES CO., THE, New York City: 250 specimens portraying every-day uses of metallic zinc and the zinc alloys "Zamak" and "Zilloy" (110093).
- NEW MEXICO SCHOOL OF MINES, Socorro, N. Mex.: Specimen of the mineral spurrite from the Tres Hermanos Mountains, N. Mex. (109716). Exchange.
- NEW YORK BOTANICAL GARDEN, Bronx Park, New York City: 118 specimens of ferns from Bolivia, collected by G. H. H. Tate (98200); photograph of type specimen of plant (106299); fern, and 2 fragmentary specimens of ferns from Cuba (106533, 107018); fern from the Bahamas (107218); 2 photographs of plants (107776); photostat print of a plant (107778); 5 plants (108333, 108428); plant from Venezuela (109168); 18 photographs of plants in the Goeldi Herbarium, Pará (109234); plant from Colombia (109754); 5 photographs of type specimens of tropical American plants (109784); (through Albert C. Smith) 44 lantern slides (109497).
- NEW YORK CAMERA CLUB, New York City: 212 pictorial prints, the Third International Invitation Salon of the Club, to be shown during the month of June, 1930 (110364). Loan.
- NEW YORK CENTRAL LINES, New York City: Pneumatic tie-tamping outfit, the first mechanical tie-tamping equipment successfully used commercially in the United States, placed in service in 1913 by the New York Central Railroad, and manufactured by Ingersoll-Rand Co. (104315).
- NEW YORK STATE AGRICULTURAL EXPERIMENT STATION, Geneva, N. Y.: 2 flies reared from seedling onions at Elba, N. Y. (106897).
- NEW YORK TIMES, New York City: Collection of photographs illustrating historical aeronautical subjects (109170).
- NEW YORK UNIVERSITY, University and Bellevue Hospital Medical College, (through Dr. Harold Liggett): Specimen of beetle larvae (109575).
- NIBLACK, Rear Admiral A. P. (deceased) (through Mrs. A. P. Niblack): 3 Moorish flintlock guns (109827).
- NICHOLSON, DAVID J., Orlando, Fla.: Body of a bird—black rail (106768); 3 eggs of glossy ibis from Florida (109592).
- NICOLAY, A., Montclair, N. J.: 8 specimens of beetles (106256); 4,000 specimens of snout beetles, including approximately 1,000 species (110065).
- NICKLES, Miss ALICE, B., Cincinnati, Ohio: Unglazed vase, Chinese (?) (106421).
- NININGER, Prof. H. H., McPherson, Kans.: 10 fragments of oxidized meteoric material (109414). Exchange.
- NOBLE, ALDEN E., Berkeley, Calif.: Approximately 50 specimens of caprellids (104174).
- NORTH CAROLINA COLLEGE OF AGRICULTURE AND ENGINEERING, Raleigh, N. C. (through Prof. T. B. Mitchell): Beetle (106429).
- NORTH CAROLINA UNIVERSITY OF, Department of Botany, Chapel Hill, N. C.: 2 plants from Jamaica (108729). Exchange.
- NORTH DAKOTA, UNIVERSITY OF, Department of Biology, University Station, Grand Forks, N. Dak. (through Prof. G. C. Wheeler): 15 specimens of fresh-water shells, and 2 phyllopods from North Dakota (107890).
- NORTON, Prof. J. B. S., University of Maryland, College Park, Md.: Plant from Maryland (108141).
- NUTTING, Mrs. HARRIET W., Washington, D. C.: Book entitled "Engravings of well-known views in the Isle of Wight," by George Brannon,

- NUTTING, Mrs. HARRIET W.—Contd. an original printed list of Thomas Sully's prices for his work, and 108 lithographs, engravings, and wood engravings (110179).
- OGILBY, RANDOLPH, Chevy Chase, Md.: Approximately 150 amphipods taken at Gloucester, Mass., during the summer of 1929 (107784).
- OHARA INSTITUTE, Kurashiki, Japan: 11 specimens of flies from Japan (107342).
- OHAUS, Dr. FR., Mainz, Germany: 40 beetles, representing 24 species (110349). Exchange.
- OLDROYD, Mrs. IDA S., Stanford University, Calif.: 3 specimens of crabs, 2 of them from the west coast of North America, collected by Walter Fisher, and 1 from Cape Colnet, Lower California, collected by the donor (107508).
- O'LEARY, ARTHUR L., Washington, D. C.: Turkey vulture from Virginia (106359).
- OLIVER, José, San Juan, Porto Rico: 500 specimens, 13 species, of land shells, and 50 fresh-water mollusks, all from Porto Rico (107409, 107580).
- O'NEILL, Rev. HUGH, Washington, D. C.: 5 plants from Florida (108891). (See also under Catholic University of America.)
- "OREGON JADE" MINING & MANUFACTURING CO., Durkee, Oreg.: Examples of "Oregon jade" from Oregon (107752).
- OREGON STATE AGRICULTURAL COLLEGE, Corvallis, Oreg. (through J. Wilcox): 29 specimens of flies (108392).
- ORTENBURGER, Dr. A. I., Norman, Okla.: Turtle from Norman, Oklahoma (94091).
- OSTEN, COEN, Montevideo, Uruguay (through Mrs. Agnes Chase, U. S. Department of Agriculture, Bureau of Plant Industry): 53 plants from South America (106495); 22 plants from Uruguay (108704).
- OSTRACH, I., Atlantic City, N. J.: A shelf clock made by Eli Terry, jr., about 1820, at Plymouth Hollow, Conn. (108047).
- OVERINGTON, R. B., Laurel, Md.: Set of osprey's eggs from Smith's Point, Va. (110136).
- OWENS, J. E., Fort Yukon, Alaska: 7 articles of Eskimo workmanship (106126).
- OWENS, Dr. S. LOGAN, Washington, D. C.: 19 canary birds (108127).
- PACIFIC BIOLOGICAL LABORATORIES, Pacific Grove, Calif.: Specimens of crustaceans and other marine invertebrate material (102611, 102689, 102952, 103349, 103382, 104864, 105443, 105837, 105945, 106155, 106614, 106887, 109185, 109547, 109795, 109885).
- PACIFIC COLLEGE OF THE, Stockton, Calif.: 200 specimens of plants from California (108910). Exchange.
- PACKARD, Mrs. ROSCOE M., West Newton, Mass.: Piece of cotton and wool coverlet in overshot weave from Edgecombe County, N. C. (109791).
- PALMER, Miss M. A. and Prof. C. P. GILLETTE, Fort Collins, Col.: 28 slides of insects (types of North American Aphidae) (106257).
- PALMER, Dr. T. S. (See under Zoological Museum, Balboa Park, San Diego, Calif.)
- PANAMA CANAL THE:
Canal Zone Experiment Gardens, Summit, Canal Zone (through J. E. Higgins): Plant from Panama (108698).
Health Department, Ancon, Canal Zone (through Dr. D. P. Curry): Specimen of fly, with one larval skin and one pupal skin (107025).
- PARCO DEVELOPMENT CO., Parco, Wyo.: Specimen of altered green cyanite (pyrophyllite) from near Parco, Wyo. (98557).
- PARDEE, Miss FLORENCE A., New Haven, Conn.: 4 daguerreotypes and 3 tintypes all by Phineas Pardee, of

- PARDEE, Miss FLORENCE A.—Contd.
New Haven, Conn. (101206);
daguerreotype mounted to be worn
as a part of a woven hair bracelet
(109147).
- PARDEE, ESTATE OF MISS FLOR-
ENCE A. (through Miss E. B. Whit-
tlesey, New Haven, Conn.: 3 da-
guerreotypes, 2 ambrotypes, and a
tintype upon dark glass (110413).
- PARISH, LEE H., Miami, Fla.: 4 bird
skins from Maryland (108137). (See
also under Parish-Smithsonian Ex-
pedition to Haiti.)
- PARISH-SMITHSONIAN EXPEDI-
TION TO HAITI (through Lee H.
Parish): 26 birds, 4 packages of
mollusks, and a scorpion from Flor-
ida and the Bahamas (107913); 4
mammals, 158 birds, 43 bird skele-
tons and alcoholic specimens, 4 bird
eggs, 10 lots of lizards, 8 lots of
fishes, 10 lots of crustaceans, a star-
fish, 6 lots of mollusks, and 2 lots
of insects from Cuba and Gonave
Islands (109546); miscellaneous
natural history material comprising
149 reptiles, 281 fishes, 26 mammals,
364 birds, 151 marine invertebrates,
5 echinoderms, and a mollusk col-
lected in Haiti in the spring and
summer of 1930 (110375). Collected
for the National Museum.
- PARKE, DAVIS & CO., Detroit, Mich.:
6 specimens of official medicinal ani-
mal products (106435); 26 specimens
and 14 photographs illustrating the
manufacture of ampoules (109831).
- PARKER, Dr. J. B., Washington, D.
C.: 30 specimens of insects, repre-
senting 18 species, 10 of which are
new, and 20 of the specimens para-
types of new species (109847).
- PARKER, J. J., Indiantown, Fla.:
Tooth of a mammoth from Florida
(109610). Exchange.
- PARLIN, JOHN C., Canton Point, Me.:
Insect (106906); specimen of moss
and plant from Maine (109049,
109792).
- PASCHAL, Mrs. Lora, Chevy Chase,
Md.: Mourning dove from Maryland
(110339).
- PATCH CO., THE E. L., Boston,
Mass.: 7 specimens and 14 photo-
graphs illustrating the manufacture
and use of cod-liver oil (109835).
- PATERSON MUSEUM, Paterson,
N. J.: 5 mineral specimens from
Paterson and vicinity, New Jersey
(108420). Exchange.
- PATTEN, Miss LORA, Richmond, Ind.:
12 flies reared from nests of spiders
in Indiana (106757).
- PAUL, C. B., Moline, Ill.: Model of
the Ford trimotored airplane *Floyd
Bennett* used in the Byrd Antarctic
expedition, 1929 (108111).
- PEARSE, Dr. A. S., Yotsuya, Tokyo,
Japan: Approximately 697 speci-
mens of marine invertebrates, also
fishes, echinoderms, insects, mol-
lusks, and amphibians (107602);
approximately 81 specimens of para-
sites on crustaceans from Japan, col-
lected by the donor (107884); ap-
proximately 23 specimens of isopods
(108011); 26 crabs collected in
China by the donor, and 10 speci-
mens, 1 species, of marine shells
from China (110165).
- PEARSON, Mrs. L. M., Washington,
D. C.: Sharp-shinned hawk (107016).
- PEDERSEN, Capt. C. T., Oakland,
Calif.: Specimen of ivory engraved
with pictographs of Siberian Eskimo
(108399).
- PENCE, JAMES D., Buhl, Idaho: Rub-
ber boa from Nevada (106735).
- PENDLETON, Mrs. MARGARET R.,
Washington, D. C.: Small bronze
horse excavated from the ruins of
Pompeii in 1853 by Edmund Pendle-
ton (108138).
- PERNER, Dr. J., Prague, Czechoslo-
vakia: 4 specimens of moldavites
from Trebic, Moravia (107378).
- PERRYGO, W. M., Washington, D. C.:
4 bird skins from Maryland
(108118).
- PERRY, WALTER J., Bend, Oreg.:
Small collection of stone implements
from central Oregon (107400).
- PETTIT, Prof. R. H. (See under
Michigan State College.)

PHILIP, CORNELIUS B., Hamilton, Mont.: 19 specimens of mosquitoes collected by the donor in Africa (108644).

PHILIPPINE GOVERNMENT:

Bureau of Science, Manila, P. I. (through R. C. McGregor): 7 land shells from the Island of Luzon (102700); 3,544 miscellaneous insects from the Philippine Islands (108172); 108 miscellaneous insects from the Philippine Islands (109883); shrimp collected by Dr. A. Herre in San Miguel Bay (108340).

PHILIPPINE SUGAR ASSOCIATION, La Carlota, Occ. Negros, P. I. (through A. W. Lopez): 6 beetles from the Philippine Islands (109406).

PHILLIPS ACADEMY, Department of Archeology, Andover, Mass.: Bones of wild turkey from Forked Lightning Ruin, Pecos Valley, New Mexico (107021); 7 bones of raven (107892).

PHILLIPS, E. PERCY. (See under Agriculture, Department of, Pretoria, Union of South Africa.)

PICKEL, Prof. D. BENTO, Pernambuco, Brazil: 132 plants from Brazil (106984, 107848, 108283, 110076).

PICKENS, A. L., Berkeley, Calif.: 4 ants and 12 insects (106698, 109162).

PIERCE, Dr. W. DWIGHT, Victorias, Occ. Negros, P. I.: A large collection of natural history specimens, comprising marine invertebrates, corals, mollusks, reptiles and batrachians, birds, bird's nest and egg, mammals, fishes, insects, arachnids, myriapods, and echinoderms (106537); approximately 135 specimens of land, fresh-water, and marine shells, and a hermit crab from Negros, P. I. (109157).

PINCHOT SOUTH SEA EXPEDITION: 453 bird skins, 25 bird skeletons, 7 eggs, 3 nests, 23 mammals, 127 reptiles, 428 fishes, 50 mollusks, and 1 vial of worms, 417 insects, and 350 marine invertebrates, from is-

PINCHOT SOUTH SEA EXPEDITION—Continued.

lands in the Caribbean Sea, Galapagos Islands, Cocos Island, Marquesas Islands, and other localities (109548).

PITCAIRN AIRCRAFT (INC.), Willow Grove, Pa.: 2 photographs of modern airplanes used for transporting mail (110316).

PITTIER, Dr. H., Caracas, Venezuela: 75 miscellaneous insects and 91 plants from Venezuela (104997, 110351); specimen of lichen (109597).

PITTS, WILLIAM B., Sunnyvale, Calif.: Slabs of jasper from localities in California (108165, 110064); collection of jasper from near Old Laguna, N. Mex. (109916).

POPENOE, C. H., Silver Spring, Md.: White-fronted parrot and a red-headed woodpecker (106703); specimens of Lilian's love bird (107015); 2 yellow-collared love birds (108126, 109164); yellow-collared love bird and 4 eggs of Lilian's love bird (108689); rosy-faced love bird and 5 eggs of Lilian's love bird (110338); rosy-faced love bird (110409).

POST OFFICE DEPARTMENT (through W. Irving Glover) letter bill which accompanied the first official round-the-world dispatch of mail, August 7-August 29, 1929 (106902): 12 sets of specimen stamps, etc., in triplicate (3,449 specimens) received from the International Bureau of the Universal Postal Union, Berne, Switzerland (106369, 106640, 106978, 107372 (2 sets), 108105, 108419, 108710, 109449, 109567, 110080, 110305); 3 specimens each of the following United States postage stamps: 2-cent Thomas Alva Edison commemorative stamp, issue of 1929; 2-cent Sullivan expedition commemorative stamp, issue of 1929; 2-cent Battle of Fallen Timbers commemorative stamp, issue of 1929; 2-cent Ohio River canalization commemorative

- POST OFFICE DEPT.—Continued.
stamp, issue of 1929 (12 specimens (107771); 3 specimens each of the following United States postage stamps: 5-cent air mail, issue of 1930; 2-cent Massachusetts Bay Colony, issue of 1930; 2-cent Charleston, S. C., commemorative, issue of 1930, and the 65-cent, \$1.30 and \$2.60 *Graf Zeppelin*, issue of 1930 (18 specimens (109898)). (See also under Hon. Liu Shu-fan.)
- PREFONTAINE, GEORGES, Montreal, Canada: 19 specimens, 6 species, of marine mollusks from the St. Lawrence estuary (107762).
- PRETORIA, UNION OF SOUTH AFRICA:
Department of Agriculture, Bureau of Plant Industry, Botanical Section (through E. Percy Phillips): Plant (109167). Exchange.
- PRICE, Dr. E. W. (See under Agriculture, Department of, Bureau of Animal Industry.)
- PRINCETON UNIVERSITY, Princeton, N. J.: 2 mineral specimens—stichtite and molengraffite—from South Africa (109238); 2 mineral specimens from Broken Hills, Rhodesia, South Africa (109609). Exchange.
- PROVINCIAL MUSEUM, Victoria, British Columbia, Canada (through John F. Clarke, entomologist): 14 specimens of Hymenoptera from British Columbia (106492).
- PROVINCIAL MUSEUM, Brno, Moravia, Czechoslovakia: Casts of 3 archeological specimens found in Moravia (107637).
- PSOTA, Dr. FRANK J., Chicago, Ill.: 25 beetles, 4 of which are paratypes, representing 3 species (107408). Exchange.
- PUTNAM, H. E., Rockville, Md.: British half-penny token struck in 1795 (107841).
- QUEEN, JOHN C., Marshfield, Oreg.: 3 crabs taken at Friday Harbor, State of Washington (109766).
- QUESADA, RAMON, Vibora, Habana, Cuba: 2 bat skins (107288).
- QUICK, WALTER J., Jr., Upper Marlboro, Md.: Specimen of least short-tailed shrew (107845).
- QUILL, Mrs. JULIA A., Laurel, Md.: Weasel (106283).
- QUISENBERRY, Mrs. MARY E., Corpus Christi, Tex.: Stone crab collected by the donor at Corpus Christi (106974); 4 crabs (107251, 108659).
- RAE, F. J. (See under National Museum, South Yarra, Melbourne, Australia.)
- RAE, Dr. W. A., Baltimore, Md. (through Dr. Riley D. Moore): The Diplomat in Osteopathy diploma of the late Dr. John A. Boyles, and early numbers of the Journal of Osteopathy, for addition to the Osteopathy collection (108711).
- RAFFLES MUSEUM, Singapore, Straits Settlements: 2 skins of fly-catcher (109757). Exchange.
- REBER, Mrs. SAMUEL. (See under Maj. Sherman Miles, U. S. Army.)
- RECORD, Prof. SAMUEL J. (See under Yale University, School of Forestry.)
- REDWOOD, Mrs. FRANCIS T., Baltimore, Md.: Silver tablespoon, ladle, cream pitcher, and sugar bowl with top, owned by Thomas McKean, a signer of the Declaration of Independence for Delaware (106355).
- REED, CLYDE T., Kingsville, Tex.: 96 beetles (109748). (See also under Texas Academy of Science.)
- REESIDE, Dr. J. B., Jr. (See under P. D. Moore.)
- REEVES, Capt. S. W., United States Army, Fort Washington, Md.: Long-tailed duck from Maryland (108897).
- REGAN, Lieut. JAMES, Jr., United States Army, Fort Davis, Canal Zone, Panama: 113 bats (alcoholic) (108594).
- REGAR, ROBERT S., Washington, D. C.: United States 5-cent air-mail stamp issued February 10, 1930 (109071).

- REHDER, Dr. ALFRED. (See under Harvard University, Arnold Arboretum, Jamaica Plain, Mass.)
- REINHARD, H. J., College Station, Tex.: 4 flies (107619); 245 flies (109132). Exchange. (See also under Texas Agricultural Experiment Station.)
- REINOSKY, FRANK, Rampart, Alaska: Fossil skull and horns of a mountain sheep from Alaska (106996); portion of skull and horn of a species of fossil bison from Alaska, collected by Chris. Grant (107839).
- REIS, Rev. JACOB A., Wooster, Ohio: 42 bird skeletons from West Africa (108656).
- REMBUSCH, F. J., Shelbyville, Ind. (through Motion Picture Producers and Distributors of America (Inc.): A synchronizer for Edison talking machine and a motion-picture projector.
- RESNER, ERNEST, Washington, D. C.: 6 amphipods, 3 isopods, 1 leech, and 6 specimens, 5 species, of fresh-water shells from Buzzards Point, Potomac River, Washington, D. C. (109408); 42 amphipods, 16 isopods, and a flat worm, collected by the donor (109556); 7 specimens, 3 species, of fresh-water mussels from the Potomac River, Washington, D. C. (109891).
- REX RESEARCH CORPORATION, Toledo, Ohio: Model showing an insanitary home which facilitates insect breeding, contrasted with a sanitary home protected against insect invasion (108677).
- RHODE ISLAND STATE DEPARTMENT OF AGRICULTURE, Providence, R. I. (through A. E. Stene): 2 insects (106763).
- RICE, Mrs. CREIGHTON, Washington, D. C.: Portrait camera stand used by M. P. Rice, about 75 years ago (108727).
- RICE, Mrs. KERYN, Washington, D. C.: English artificial soft porcelain cup, saucer, and plate made about 1830 (Davenport?) (110178).
- RICHABERGER, J. C., Vinton, Tex.: Specimen of the mineral memetite from Sonora, Mexico (109542).
- RICHARDS, HORACE G., Philadelphia, Pa.: 33 specimens of crustaceans collected by the donor off Cape May, N. J., Delaware Bay, and Cape Charles, Va. (106646); 39 specimens of crustaceans from the coast of New Jersey, collected by the donor (107615); 24 specimens of crustaceans collected by the donor off the coast of Delaware, New Jersey, and Virginia; also 2 lots of fossil crab claws collected by the donor on the coast of New Jersey (108374); fossil crab claw from North Carolina (109178).
- RICHFIELD OIL CO. OF CALIFORNIA, Los Angeles, Calif. (through Mr. Hubert G. Schenck): Specimen of fossil crab from Well Tapo No. 42, Simi oil field, Ventura County, Calif. (109493); 3 specimens of fossil crustaceans from core drills (109897).
- RICHMOND, Dr. C. W., Washington, D. C.: 2 bird skins from Cold Spring, New York (110310).
- RICHMOND, Mrs. ELIZABETH M., Washington, D. C. (See under Mrs. Ida Van Voorhis.)
- RICKER, P. L., Washington, D. C.: Specimen of cultivated plant from a greenhouse (107140).
- RIGGS, J. LOWRY, Rockville, Md.: Red-necked gazelle (106230).
- RIKSMUSEET BOTANISKA AVDELNING, Stockholm, Sweden (through Prof. G. Samuelsson, director): 150 specimens of Scandinavian plants (109594).
- RILEY, Prof. WILLIAM A. (See under Minnesota, University of.)
- ROADS, Miss KATE N., Hillsboro, Ohio: 4 plants from Ohio (108461).
- ROBBINS, C. S., Mishawaka, Ind. (through Dr. M. W. Lyon): Skull of a gray fox, and skull of a badger (109240).
- ROBERTS, C. C., Malden, Mass.: 14 wooden and clay ethnological specimens from Africa (108044); collec-

ROBERTS, C. C.—Continued.

tion of ethnological specimens from various places in West Africa (110352).

ROBERTS, Dr. JOSEPH K., University, Va.: 21 specimens, 4 species, of fossil shells from Loess bed 1 mile south of Hickman, Fulton County, Ky. (108161).

ROBERTS, W. J., Luton, England: 40 bromoils for special exhibition from December 29, 1929, to January 30, 1930 (108129, loan); 2 pictorial photographs (109064).

ROBINSON, Dr. B. L. (See under Harvard University, Gray Herbarium.)

ROBINSON, Dr. N. E., Waterbury, Conn.: Isopod (110090).

ROBINSON, W. O., Falls Church, Va.: Archery flight bow of osage-orange wood (109083).

ROEBLING FUND, Smithsonian Institution: Crystal of columbite weighing 27 pounds (106501); a large crystal of smoky quartz from Auburn, Me. (106663); 2 mineral specimens bialite and stibiopalladinite (107002); 23 minerals (107249); 4 crystals of green tourmaline from Pernambuco, Brazil (107616); 15 minerals from Franklin, N. J. (107719); 10 specimens of uranium minerals (107743); 2 mineral specimens—fauserite and weibullite (107758); a cut yellow sapphire weighing 25.85 carats (108018); 2 mineral specimens—cerussite and phosphophyllite (108034); 2 mineral specimens—akermannite and pseudonocerite from Italy (108080); specimen of the mineral tridymite from Lake County, Calif. (108147); 2 mineral specimens—klebelsbergite and fuloppite—from Hungary (108162); 5 crystals of tourmaline (108259); a topaz crystal from the vicinity of Mogok, Upper Burma, showing a rare form of crystallization (108313); 4 specimens of gold from Placer County, Calif. (108350); 2 specimens of radium-bearing minerals and 1 crystal of cassiterite

ROEBLING FUND—Continued.

from the Belgian Congo (108465); specimen of the mineral yuksporite from Yukspor, Kola Peninsula, Russia (108690); 2 mineral specimens—euphyllite and crystallized native platinum (109216); 5 specimens of minerals from Franklin, N. J. (109630); specimen of the mineral manganocolumbite from Newry Township, Me. (109631); 4 specimens of minerals (109853); large specimen with tourmaline crystals in matrix from Maine (109865); 2 mineral specimens—lievrite and zinc-hureaulite (109893); 2 specimens of uraninite from North Carolina (110143); 5 specimens of the mineral whewellite (110296).

ROEBLING, JOHN A., Bernardsville, N. J.: 17 archeological specimens from various sites in the United States, Guatemala, Italy, Mesopotamia and Egypt (109842).

ROGERS, JAMES C., Washington, D. C.: Experimental apparatus, comprising 21 specimens of the late Dr. J. Harris Rogers, Hyattsville, Md., pertaining to his visual synchronous telegraphic system of 1887–1890 and his underground and underwater communication system (110134).

ROOT, FRANCIS M., Baltimore, Md.: 14 crabs and a bat from Grenada, British West Indies, collected by the donor (109229).

ROSENBERG, E. A., Copenhagen, Denmark: 20 specimens of beetle larvae from Denmark (107878).

ROSENSTOCK, Dr. EDUARD, Gotha, Germany: 5 specimens (type collection) of ferns from Costa Rica (110160). Exchange.

ROSS, HERBERT H., Urbana, Ill.: 3 specimens of sawfiles (107121). Exchange.

ROTH, ROBERT, Bartlesville, Okla.: Type specimens of ostracods and foraminifers from the Carboniferous of Colorado (110155).

ROUNDY, P. V., Washington, D. C.: 75 land shells from Kansas and Oklahoma (108906).

- ROURKE, JOHN, Sr., Savannah, Ga.:** Blue print of James Watt steam engine of 1815, erected at Savannah, Ga. (104928).
- ROWAN, DR. WILLIAM, Edmonton, Alberta, Canada:** 7 specimens of giant hydra collected by the donor in frigid lakes near Alberta (107589). (See also under Alberta, University of.)
- ROWE, J. A., Salt Lake City, Utah:** 2 flies from Utah (109510). Exchange.
- ROWLETT, Mrs. SUE C., Halifax, Va.:** Plant (110356).
- ROYAL BOTANIC GARDEN, Edinburgh, Scotland (through Prof. William Wright Smith, Regius Keeper):** 996 plants from southwestern China and Tibet (110397). Exchange.
- ROYAL ONTARIO MUSEUM OF MINERALOGY, Toronto, Canada:** Specimen of albite (peristerite) from Hybla, Ontario (110067). Exchange.
- RUBBER MANUFACTURERS ASSOCIATION, THE, New York City:** 64 specimens of rubber gloves and surgical appliances and 3 rubber raincoats (109752); 108 specimens and 27 photographs illustrating the production and uses of rubber, furnished by various members of the association for replacement of deteriorated exhibit material previously contributed by the association (109410); 6 panels of rubber tile flooring, 2 miniature bales of commercial rubber, 16 micrographs of sections of bark of cultivated rubber trees, and 25 specimens of rubber parts for Underwood typewriters (109822); a series of 14 specimens showing the manufacture of tennis balls, and a rubber blanket used by linemen when repairing high-tension electric lines (110553).
- RUDGE, WILLIAM EDWIN, New York City:** 2 examples of printing; a broadside and a facsimile reprint of *The Morning Post and Daily Advertiser* of London, August 17, 1776, in which appears the first printing in England of the Declaration of Independence (106275); an aquatone print *Lest We Forget*, and a book *The Christmas Dinner* from the sketch book by Washington Irving with typography and binding design by Frederic Warde (108355).
- RUNNELS, E. A., Joliette, N. Dak.:** Concretionary object simulating in form a small human foot (89610).
- RUNYON, ROBERT, Brownsville, Tex.:** 12 plants (106599); 72 plants, chiefly from Mexico (107375); 2 living specimens of plants from Texas (109903).
- RUSSELL, J. TOWNSEND, Jr., Washington, D. C.:** Rare Hawaiian tapa in 5 sheets, formerly lent to the Museum by the late Canon J. Townsend Russell, father of the donor (108115); 2 earthenware jars from the Casas Grandes district, Chihuahua, Mexico (108551); skeleton of crucifixion fish (109718); 5 lots of potsherds collected from ruins in the Tonto National Forest, Gila County, Ariz. (110125); 1,210 prints, comprising etchings, engravings, drawings, lithographs, and other specimens (110173).
- SAALAS, DR. UNNIO, Helsinki, Finland (through Dr. A. G. Boving):** 331 specimens of beetle larvae (108349). Exchange.
- SACHSE, JOHN A., Washington, D. C.:** 14 pieces of Indian textile art (108020). Exchange.
- SADDLER, Prof. W. O. (See under Mississippi College.)**
- ST. GEORGE, R. A. (See under Madam A. N. Kolobova.)**
- SAMUELSSON, Prof. G. (See under Riksmuseet Botaniska Avdelning.)**
- SASKATCHEWAN, UNIVERSITY OF, Saskatoon, Saskatchewan:** (through Prof. L. G. Saunders): Slide with 6 specimens of insects (106428); 5 insects (106755).

- SAUNDERS, Miss BELLE C. (through W. A. Saunders, Chevy Chase, D. C.): Sampler made by Martha Saunders in 1835 (108904). Bequest.
- SAUNDERS, Prof. L. G. (See under Saskatchewan, University of.)
- SAUNDERS, W. A. (See under Miss Belle C. Saunders.)
- SCALCO, SALVATORE, Washington, D. C.: Centipede found in a bunch of bananas from Baracoa, Cuba (110337).
- SCHAEFFER, CHARLES, Brooklyn, N. Y.: Beetle—holotype (106777); type specimen of a beetle (110336).
- SCHAUS, Dr. WILLIAM, Washington, D. C.: 12 specimens of butterflies, which were purchased by the donor from Hugo Kruger, Iguala, Guerrero, Mexico (106116).
- SCHELLENBERG, Dr. A., Berlin, Germany: 12 specimens of amphipods (109362). Exchange.
- SCHENCK, HUBERT G. (See under Richfield Oil Co. of California.)
- SCHERNIKOW, ERNEST, San Francisco, Calif.: 2 amethysts from Arizona (109233).
- SCHMID, EDWARD S., Washington, D. C.: 3 birds—bullfinch, hill-tit, and strawberry finch (106914); vermilion cardinal (106988); spider monkey (107858); 3 birds (108117); 3 canary birds, and a canary bird white variety (108286, 108383, 109072); hybrid between canary and European goldfinch (108909); 5 specimens of birds—budgerigals (110440).
- SCHREITER, RUDOLF, and HAROLD E. BOX, Tucuman, Argentina: 77 specimens of flies collected in Argentina by the donors (105133).
- SCHULTZ, Dr. A. H., Baltimore, Md.: Bat (106985).
- SCHULTZ, Prof. LEONARD P., Seattle, Wash.: 2 specimens of mud minnow, paratypes of a new species from western Washington (107541).
- SCRIVENS, Mrs. C. W., Greenville, Pa.: Candle mold and a plate (110121).
- SECRETARÍA DE EDUCACIÓN PÚBLICA, Mexico, D. F., Mexico. (See under Mexico, Government of.)
- SEDGWICK MUSEUM, Cambridge, England: 2 mineral specimens, larnite and spurrite from Antrim, Ireland (109231). Exchange.
- SELECTASINE PATENTS CO., San Francisco, Calif.: Specimens of silk stencil printing, and a small hand stencil apparatus showing the method of tracing the design on the silk and "blocking out"; also the original drawing to be reproduced, and a black card which is ready for the second color (17 specimens) (107108).
- SELLERS, WENDELL F. (See under Agriculture, Department of, Bureau of Entomology, Gipsy Moth Laboratory, Melrose Highlands, Mass.)
- SERVICO GEOLOGICO E MINERALOGICO do BRAZIL (through Dr. Luciano Jacques de Moraes): Samples of the mineral arrojadite from Brazil (109133); 10 specimens of lead-zinc and antimony ores from Morro do Bule, Ouro Preto, Minas Geraes, Brazil (109736).
- SETCHELL, Prof. W. A. (See under California, University of, Department of Botany.)
- SEYRIG, Monsieur ANDRE, Paris, France: Approximately 150 specimens, representing about 100 species, of determined European Ichneumonidae, 3 specimens of which are cotypes (106508). Exchange; 10 named specimens of ichneumon flies from Madagascar, representing 8 species, including 2 cotypes and 5 genotypes (107894).
- SHAFFER, EDGAR B., Mineral Bluff, Ga.: Examples of the mineral stauroilite from Fannin County, Ga. (106991).
- SHAMAN, J. O., Slater, Wyo.: Beetle from Wyoming (109076).
- SHAMBERGER, HUGH A., Las Vegas, Nev.: 53 specimens, 3 species, of fossil shells (109912).

- SHANTUNG CHRISTIAN UNIVERSITY**, Tsinan, China (through Arthur Jacot): 15 specimens of insects from China (106433); 71 insects mounted on 8 slides, 4 shells, and a number of specimens of bryozonans (109606).
- SHARP & DOHME (INC.)**, Baltimore, Md.: 12 specimens of official medicinal preparations derived from the animal kingdom (106945).
- SHAW, CHARLES M.**, Washington, D. C.: Plant from Virginia (107220).
- SHAW, HERBERT**, Sonora, Calif.: Specimen of the mineral diopside (108431).
- SHEAR, Dr. C. L.**, Washington, D. C.: 120 specimens of mosses from the herbarium of Ezra Michener (110350); 6 plants from Hawaii (110370). (See also under Agriculture, U. S. Department of, Bureau of Plant Industry.)
- SHEN, CHARLES J.**, Peiping, China: 48 marine invertebrates collected by the donor (106412).
- SHEPARD, Dr. CHARLES U.** (deceased): The Shepard collection of minerals, aggregating 5,050 specimens; a bound catalogue of the collection, 2 packing cases and 4 containing cases (106536). Bequest.
- SHERFF, Dr. EARL E.**, Chicago, Ill.: 19 plants from the Hawaiian Islands (106422, 109144).
- SHIDELER, Prof. W. H.**, Oxford, Ohio: 4 type specimens of cephalopods, and one type of crinoid from the Richmond Group of Ohio (108361); 200 specimens of Devonian sponge (108720).
- SHOEMAKER, Dr. D. N.**, Takoma Park, D. C.: 1 chain stitch, hand operated sewing machine, made about 1869 (106919).
- SHOEMAKER, FRANCIS D.**, Washington, D. C.: 2 early surveying instruments with tripod and Jacob's staff, and early dynamo electric machine (109599).
- SHU-FAN, Hon. LIU**, Director General of Posts of China, Nanking, SHU-FAN, Hon. LIU—Continued.
China (through Post Office Department of the United States): Album containing a collection of Chinese postage stamps issued 1913-1929 (107245).
- SHUFELDT, Miss MARY A.**, (through Mrs. Walter R. Tuckerman, Edgemoor, Bethesda, Md.): Gold bracelet presented to the donor by the Sultan of Zanzibar (106268).
- SHUFELDT, Maj. R. W.**, United States Army (retired), Washington, D. C.: Small collection of birds, reptiles, and batrachians, made by the donor; also 3 Chinese bricks (107083).
- SIAMESE LEGATION**, Washington, D. C.: Enlarged sepia photograph of a Royal Siamese barge and three colored posters of the Royal Siamese State Railway (107312).
- SIKORSKY AVIATION CORPORATION**, Bridgeport Airport, Bridgeport, Conn.: Photograph of the Sikorsky amphibian airplane, type S-38 (109613).
- SILVESTRI, Prof. F.**, Portici, Italy (through J. C. Bridwell): 35 beetles, representing 2 species of Bruchidae from Italian Somaliland, Africa (106590).
- SILVEY, FRANK**, Summit Point, Utah: Examples of rare minerals from Utah (109065).
- SIMPSON, EDWARD S.**, Perth, Western Australia: 2 specimens of the mineral gearsutite from Gingin, Western Australia (108587); specimen of blue topaz and 2 of green beryl, from western Australia (109156). Exchange.
- SKUTCH, Dr. ALEX. F.**, Baltimore, Md.: 14 specimens of miscellaneous insects (106644); 16 plants and 6 photographs of plants (107076).
- SLATER, Mrs. ELSIE McELROY**, El Paso, Tex.: 6 plants from Texas (107088).
- SLATER, F. E.**, Sharon, Pa.: Lambert typewriter, No. 3715 (108454).

- SLOUGH, JOSEPH C., Allentown, Pa.: Medallion of Dr. Samuel Hahnemann, and 3 medicine cases for addition to the homeopathy collection (109963).
- SMITH, ALBERT C. (See under New York Botanical Garden.)
- SMITH, Prof. CHARLES PIPER, San Jose, Calif.: 62 plants (107432).
- SMITH, Mrs. H. H., Fayetteville, N. Y.: Steam automobile "Locomobile" purchased on July 4, 1900, and in possession of the donor on that date (106490).
- SMITH, Dr. HUGH M., Bangkok, Siam: 4 parasitic copepods taken by the donor from a trigger fish at Woods Hole, September 15, 1927 (98445); 27 specimens of phyllo-pods and 7 bird skins from Siam (105922, 107592); 650 miscellaneous insects, 1 crab, and a small collection of shells from Siam; also a branchiopod (106935); natural history material, comprising bird skins, eggs, nest and skeletons; also mammals, insects, crustaceans, mollusks, reptiles, a fossil crab, and an ethnological specimen (107725).
- SMITH, Mrs. PAUL R., Fort Sill, Okla. (through Dr. Riley D. Moore): Collection of photographs and miscellaneous papers, bearing on the early history of osteopathy (108725).
- SMITH, Prof. WILLIAM WRIGHT. (See under Royal Botanic Garden, Edinburgh, Scotland.)
- SMITHSONIAN INSTITUTION:
18,744 specimens of plants, 1 insect, and 28 specimens of mollusks collected in Peru and Brazil by E. P. Killip and Albert C. Smith (105490); 9 boxes of British Caradocian fossils collected by B. B. Bancroft, Nibley House, Blakeney, Gloucestershire, England, under grant from the Institution (105890); an enameled watch by Moulinie & Legrandroy, Geneva, and a seal ring (106715); an oriental rug (107774); 6 min-
ature flying devices (107846); etching entitled "Surf-pounded Coast" by C. Jac Young, the Brooklyn Society of Etchers "Associate Member's Print" for 1929 (108363); 350 specimens of plants from Peru, collected by Mr. Guillermo Klug, Iquitos, Peru (108450). Deposit.
- Bureau of American Ethnology:*
Approximately 800 specimens of carved ivory representing the eastern Behring Sea culture, collected by Dr. A. Hrdlicka in 1929 (107753); an archaic black and white bowl collected by Dr. Walter Fewkes from Far View House, Mesa Verde National Park, in 1921, and a fragment of ancient Zuni pottery from Canyon del Muerto, Arizona, collected by Dr. W. H. Spinks (107862); blackberrying basket made by Mrs. Ascencion Solorzano, a San Juan Indian, and collected by J. P. Harrington in 1929 (107866); flint hammerstone presented to the bureau by J. D. Howard, cast of an engraved bone gorget sent by E. M. Graves, and a Chinese basket (109074); smoking pipe or cigarette made of anis by the San Juan Indians of San Benito County, Calif., and collected by J. P. Harrington (109788); cast of a "cogged" stone from the ranch of Mrs. Newland, of Huntington Beach, Los Angeles, Calif. (110111); decorated elk skin pouch made by Fritz Hanson, a Karuk Indian, of Somesbar, Siskiyou County, Calif. (110113); a 2½-inch telephoto lens and a triplex shutter (110135); archeological material and a lot of dog bones collected in 1928 by Dr. F. H. H. Roberts, jr., from early Pueblo ruins in the Piedra district, Archuleta County, southwestern Colo. (110319).

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National Museum, collected by members of the staff: Aldrich, J. M.: 2,000 flies collected in northern Europe during July, 1929 (105510). Bean, B. A.: 106 fishes and a few invertebrates collected in the Potomac River and connecting ponds in the vicinity of Lanedon, Md. (106658). Boss, Norman: 6 specimens of reptiles, 2 coiled baskets, a piece of a gourd vessel and a digging stick (102477). Brown, W. L.: 15 white-tailed deer and 6 small mammals from South Carolina; also 2 horned owls (107897). Collins, Henry B., jr.: Ethnological and human skeletal material, small lots of mammals, insects, and fossil animals, collected at various sites in northwest Alaska during the summer of 1929; also nodules and fossil shells from Lutke Harbor, St. Lawrence Bay, northeast Siberia; photographs taken in Alaska, Florida, and Tennessee by Mr. Collins in 1927, 1928, and 1929 (104800, 109421). Cooke, C. W., William B. Marshall, and Capt. K. B. Squyer: Approximately 200 specimens, 9 species, of fresh-water shells from Susquehanna River, below Conowingo Dam, Md. (106971). Foshag, W. F.: Large collection of borates and miscellaneous minerals from southern California; miscellaneous minerals from North Carolina collected in April, 1930 (104583, 110133). Gidley, J. W.: Collection of Pleistocene and Pliocene vertebrates, consisting chiefly of mammals, from Snake River Valley, Idaho, collected in 1929; (with the cooperation of the Smithsonian Institution and Childs Frick) Pleistocene fossils from near Melbourne, Fla., comprising various fragmen-

SMITHSONIAN INSTITUTION—Con.

National Museum, collected by members of the staff.—Contd. tary mammal, reptile, and bird specimens (109128, 109892). Gilmore, C. W.: Collection of reptilian fossils, comprising 94 lots, from the Upper Cretaceous formation of the San Juan Basin, N. Mex. (105476). Kellogg, Remington: Skull, mandibles, portions of fore limbs, and vertebrae of a fossil whale-bone whale from Calvert County, Md. (108916). Reid, E. D.: 4 lots of frogs, 9 lots of salamanders, 8 lots of fishes, 7 lots of larvae, a leech, 10 lots of crayfishes, 2 lots of shells, and a snail collected in the mountain ranges of eastern Tennessee and western North and South Carolina (104955). Resser, Charles E.: 1,280 invertebrate fossils, mainly from Montana (106203).

National Museum, obtained by purchase: A group of 10 photographs of incidents connected with the pioneer work of the Wright brothers and Glenn Curtiss (110343); 100 specimens of plants from Trinidad (106271); 100 plants from Trinidad (106661); 4 specimens of peripatus from Trinidad (107532); 1,429 plants collected in Bolivia by Dr. Otto Buchtien (108269); 14 Assyrian baked clay tablets from Chakma, the holy city of Chalush, near Babylon (106940); 2 Babylonian cylinder seals (107764); 2 oriental wood cuts by Lilian Miller (108153); sponge (Venus flower basket) (109586); copper celt from Mississippi (107799); 25 specimens of North American mosses (North American Musci Perfecti, Nos. 151-175) (106269); model contrasting sanitary and insanitary schools (108426);

SMITHSONIAN INSTITUTION—Con.
*National Museum, obtained by
 purchase—Continued.*

6 early clockmaker's tools (108233); 275 plants from the western United States (106298); 98 plants from Uruguay (108692); 41 small Siberian mammals collected by W. W. Scanlon, in Siberia, Union of Socialistic Soviet Republics in Asia (106293); human skeletal remains, and archeological and ethnological specimens; also mammal bones and 7 lots of bird bones, collected in Alaska during the summer of 1929 (107380); 5 insects from Mexico (110150); bronze medal commemorating the centennial anniversary of the founding of Jackson, Mich., and the seventy-fifth anniversary of the founding of the Republican Party (2 specimens) (106356); 4 wood block prints in color, the work of Elizabeth Keith, entitled "Bridge, Soochow," "Night Scene, Peking," "Street Scene, Soochow," and "The Scholar, Korea," (108120); 2 bromoil transfers (108911); slabs containing specimens of 2 fossil species (106773); plankton, amphipods, shrimps, and marine annelids (107402); sheep skin and skull from Sardinia (104299); 329 plants from British Honduras (108173); the Hornsby-Akroyd oil engine, No. 1501, the first engine of this type sold in the United States (106378); color print illustrating the Byrd polar Fokker airplane over the North Pole, May, 1926 (108152). Sargent magnetic combination lock, patented by James Sargent, Rochester, N. Y., May 23, 1865, manufactured January 9, 1866, showing type of lock used in burglar-proof vaults and safes in banks prior to the perfection of the

SMITHSONIAN INSTITUTION—Con.
*National Museum, obtained by
 purchase—Continued.*

time lock in 1873 (107077); 286 plants from the eastern United States collected by Dr. and Mrs. E. B. Payson in 1926 (107864); collection of 639 specimens of Eskimo carved ivory (107258); Eskimo knife (108272); 6 bird skeletons from West Africa (108656); skin and skeleton of a hedgehog (109073); 100 specimens of plants from British Honduras (106912); 100 plants from British Honduras (107733); 300 plants from Spain (108892); a group of 12 photographs illustrative of the Stinson School of Flying and early United States Army flying activities of about 1910 (110315); 500 plants from Paraguay (98125); 48 skeletons of birds from Chile (108143); 15 stone axes and adzes from British New Guinea (106585); 456 plants and 24 mammal skins; also a bird skin collected in Peru by Carlos Schunke (106876); 4 ancient pottery bowls from Kintiel Ruin, Ariz., collected by Neil M. Judd (106936); 8 fossil horse skeletons from near Crawford, Nebr. (107360); small fossil mammal skeleton from the Florissant near Colorado Springs (107510); collection of early hand tools, made by E. Mills & Co., and exhibited at Centennial Exhibition in Philadelphia, Pa., 1876 (251 specimens) (107804); 222 plants from the Dominican Republic (107574); 308 Argentine plants (108268); 103 specimens representing 58 species and subspecies of terrestrial isopods, including 46 cotypes (108059); 3 skeletons of birds (106231).

*National Museum, made in the
 museum laboratories:* 3 plaster
 casts of an adze found in Wood

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National Museum, made in the museum laboratories—Contd.

County, Wis., the original of which is the property of Dr. A. Gerend, Westphalia, Mich. (105264); 5 casts of carvings in a cave at San Michel, Haiti, made from impressions brought back by A. J. Poole and W. M. Perrygo (107094); steam-engine indicator, c. 1796, copy of James Watt's indicator (107401); reproduction of the Launoy and Bienvenu helicopter of 1784 (107783); model of a prairie windmill (107859); reproduction of an Egyptian pin lock or "Dabbeh" (108632); full-sized reproduction of an Egyptian bow lathe, the earliest type of lathe but still used at the present time (108657); plaster impression of a child's foot made from a cast owned by Dr. George A. Williams, Atlanta, Ga. (109203); model of Faraday's dynamo, 1831 (109553); 3 casts each of 3 stone adzes from Alaska, the originals of which are in the Alaska Agricultural College, Fairbanks, Alaska, Dr. Charles E. Bunnell, president (109579); reproduction of the propeller used on Santos Dumont's airship *No. 1*, 1893 (110412).

National Zoological Park: Skin and skull of a monkey, skin and skull of an Indian palm civet (106300); 52 birds (106511, 109165, 110383); skin and skull of a monkey, leopard (alcoholic), skin and skull of a gnu, and photograph of the head of a monkey (106516); cassowary (107105); skin and skull of a monkey, skeleton of a monkey, monkey in alcohol, and skin and skeleton of a carpincho (107732); egg of an emu (108382); 10 mammals (108881); skin and skeleton of

SMITHSONIAN INSTITUTION—Con.

National Zoological Park—Contd.

a hippopotamus, skin and skull of a Manchurian tiger, monkey (alcoholic), and skin and skull of a deer (109422); egg of California vulture (109719); skull and pelvis of a California sea lion, a wolverine, and a grison (109800); cinnamon bear and a brush-tailed kangaroo (109812); woolly necked stork (110167); half-grown chimpanzee (110372).

SOCIAS, ANDRES, Monte Cristy, Santo Domingo: 3 specimens of fossil mollusca from Santo Domingo (106286).

SOFIA, UNIVERSITY OF, Bulgaria (through Prof. N. Stojanoff: 200 plants from Bulgaria (108150). Exchange.

SOUTH DAKOTA, UNIVERSITY OF, Geological Museum, Vermilion, S. Dak. (through Dr. Carl O. Dunbar): 3 specimens of fossil crab material (95370).

SOUTHWEST ONYX & MARBLE CO., San Diego, Calif.: Square slab of onyx 17 by 17 inches from Inyo County, Calif. (103514).

SPANG, Miss ROSALIE, Paris, France: White Point d'Alencon shawl and a wide white flounce to match, and a wide black Chantilly lace flounce and a narrow black flounce to match, presented in memory of the donor's mother, Mrs. Sarah Ann Lloyd Spang, of Pittsburgh, Pa. (107000).

SPERRY GYROSCOPE CO., THE, Brooklyn, N. Y.: 9 airplane instruments (early types): 2 pieces of the first type of gyro steering apparatus, and a high-intensity arc lamp of 1916 (103045); the first gyrocompass built by Elmer A. Sperry (106664). Loan.

SPRINGER FUND, Smithsonian Institution: Casts and guttapercha impressions of the cystids described by Barrande in his *Silurian System* and now preserved in the Museum at Prague; also 6 crinoid slabs and a fossil starfish (106396).

- SQUYER, Capt. K. B., United States Army, Fort Humphreys, Va.:** 2 fresh-water shells from Potomac River, Seneca Falls, Md. (106981). (See also under Smithsonian Institution, U. S. National Museum. Collected by members of the staff. C. W. Cooke.)
- STANFORD UNIVERSITY, Stanford University, Calif. (through Mr. Ira L. Wiggins):** 3 plants from California (107507); (through Prof. LeRoy Abrams) 365 plants from Mexico and California (110127). Exchange.
- STANTON, Dr. T. W. (See under Louisiana Gas & Coal Co., Shreveport, La., and A. Allen Weymouth.)**
- STARK, ESTATE OF Mrs. D. L. (through Wilkinson Stark, New York City):** Silk brocaded dress of the latter part of the eighteenth century (107922).
- STARK, WILKINSON. (See under Mrs. D. L. Stark, Estate of.)**
- STONE, A. E. (See under Agricultural Experiment Station, Kingston, R. I., and Rhode Island State Department of Agriculture.)**
- STEPHENSON, Mrs. J. P., Richardson, Tex.:** 414 plants from Texas (108054).
- STEPHENSON, Prof. L. W., Washington, D. C.:** 50 specimens, 7 species of land shells from Venezuela (109213).
- STEVENS, Mrs. T. J., East Falls Church, Va.:** Three pairs of moccasins made by the Cheyenne Indians, Busby, Mont. (106999).
- STEVENSON, J. A., Washington, D. C.:** 1,310 plants from Porto Rico (109632).
- STOHLER, Dr. R., San Francisco, Calif.:** Egg capsules of a gastropod mollusk (109184).
- STOJANOFF, Prof. N. (See under Sofia, University of.)**
- STOTTLEMEYER, Miss MARGARET A. R., Frederick, Md.:** Salt shaker, pepper shaker, and a carved and turned wood sugar bowl used in colonial America, 1770, made in Germany and
- STOTTLEMEYER, Miss MARGARET A. R.—Continued.**
brought over in colonial times by the donor's ancestors (107373).
- STRATTAN, Mrs. G. W., Wilkinsburg, Pa.:** 4 specimens of ferns from Pennsylvania (107244).
- STURGES, DWIGHT C., Melrose, Mass.:** 7 linoleum block prints of Abraham Lincoln and 45 etchings for special exhibition from December 2, to 29, 1929 (107883). Loan.
- SUTTON, Dr. RICHARD L., JR., Kansas City, Mo.:** 2 crabs taken in a stream on the edge of the Serrengetti Plains in Northern Tanganyika (109532).
- SWALES FUND, Smithsonian Institution (106949):** 3 bird skins, including 2 species new to the Museum collections (107593); 2 bird skins, Syke's crested lark, new to the Museum collections (108045); skin of a bird—fire-capped tit-warbler, from Kashmir (109218); 27 bird skins from India (109840).
- SWIFT & CO. (See under R. C. Fairhead.)**
- SYMES, CHRIS J., F. R. P. S., Claughton, Birkenhead, England:** 50 bromoil transfers for special exhibition from October 1 to November 30, 1929 (107141). Loan.
- TAIHOKU IMPERIAL UNIVERSITY, Department of Botany, Taihoku, Taiwan, Japan (through Prof. Tyozaburo Tanaka):** 180 plants (108334). Exchange.
- TANAKA, Prof. TYOZABURO. (See under Taihoku Imperial University.)**
- TANNER, Prof. V. M. (See under Brigham Young University.)**
- TAYLOR, GEORGE W., Fort Yukon, Alaska:** Stone hammer found on the bank of the Little Black River, Alaska (109204).
- TAYLOR CO., HORACE B., Philadelphia, Pa.:** 2 boxes of Hooper's pills for addition to the history of pharmacy collection (109521).
- TAYLOR, Prof. LELAND H., Morgantown, W. Va.:** 8 mollusks from Cheat River, W. Va. (106903).

- TEASDALE, Miss ETHEL, Florence, Ariz.: Plant from Arizona (109817).
- TENNESSEE FURNITURE CORPORATION, Chattanooga, Tenn.: 2 chests, 1 of solid red cedar, and 1 with red cedar interior and walnut veneer exterior, received in exchange for Piedmont red cedar chest (106762). Exchange.
- TEXAS ACADEMY OF SCIENCE, Kingville, Tex. (through Clyde T. Reed): 18 insects from Texas (108662).
- TEXAS AGRICULTURAL EXPERIMENT STATION, College Station, Tex. (through Mr. H. J. Reinhard): 3 flies from Texas (109230).
- TEXAS, UNIVERSITY OF, Austin, Tex.: 895 plants from Texas (106595, 106899).
- THAXTER, Prof. ROLAND, Cambridge, Mass.: 2 flies (109833).
- THOMSON, RODNEY, New York City: 40 dry points for special exhibition from January 27 to February 24, 1930 (108633). Loan.
- THOREK, Dr. MAX, F. R. P. S., Chicago, Ill.: 6 pictorial photographs—"Envy," "Nocturne," "Afterglow," "Serenata," "Romanza," and "Adoration" (106371).
- THORNTON, Judge C. W., Nome, Alaska: 31 plants from Alaska (107849).
- TISSOT, A. N. (See under Florida, University of, Agricultural Experiment Station.)
- TOLEDO ZOOLOGICAL SOCIETY, Toledo, Ohio: Head of a lion (106523).
- TOLMAN, R. P., Washington, D. C.: A 4 by 5 view camera, patented February 20, 1888 (109867).
- TOLSON, E. C., Stevensville, Md.: Archeological material from various sites on Kent Island, Queen Anne County, Md. (109986).
- TOMKINS, IVAN R., Savannah, Ga.: 4 shrimps, 2 from salt water and 2 from fresh water, collected by the donor (107851); tooth of an extinct species of sperm whale (108321); 5 shrimps, 2 stomatopods, and a
- TOMKINS, IVAN R.—Continued.
small fish collected by the donor (109366); 4 small fishes, 4 frogs, and 4 snakes (109536).
- TONOPAH EXTENSION MINES (Inc.), Tonopah, Nev.: 2 pieces of silver ore from the Denver vein, Tonopah extension mines, Tonopah, Nev. (108358).
- TOPPING, E. W., Ashland, Ohio: Model of the Sikorsky "Amphibion" airplane of the type used by the Pan-American Airways, 1936 (108574); model of the Lockheed "Sirius" low-wing monoplane built specially for Colonel Lindbergh, in which on April 20, 1930, he made a record for transcontinental flight (109815).
- TOWLES, WILL H., Washington, D. C.: Autochrome portrait made in Washington in January, 1908 (107614).
- TOWNSEND, CALVIN, Fairbanks, Alaska: Painted figure on wood from an old grave near Holy Cross, resembling late Paleolithic and Mesolithic figure from Europe (107095).
- TOWNSEND, Dr. C. H. T., Sao Paulo, Brazil: 33 specimens of flies, representing 30 species, 26 of which are represented by types (109431). Exchange.
- TRAIN, PERCY, Lower Rochester, Nev.: 6 specimens of fossil fresh-water mussel, and a tufa concretion, all from the Pleistocene, Lake Lahontan, Nev. (107837).
- TRANSVAAL MUSEUM, Pretoria, Transvaal, Union of South Africa: 10 bird skins from South Africa (109180). Exchange.
- TRELEASE, Dr. WILLIAM R., Urbana, Ill.: 5 plants from Columbia (109821). Exchange.
- TREASURY DEPARTMENT:
Bureau of the Mint: European coins of the Napoleonic period (106979); (through Hon. Robert J. Grant, director) 2 bronze 5-centimos pieces of the Republic of Costa Rica, struck in 1929 (107842); bronze plaque com-

TREASURY DEPARTMENT—Contd.

Bureau of the Mint—Continued.

memorating the completion of the new mint building in Osaka, Japan, and nickel-copper medal commemorating the fifty-eighth annual examination of the pyx-coins at the mint in 1929 (108900); 85 coins of the Byzantine Empire, Albania, Bulgaria, Dombes, France, Lorraine, Luxembourg, Metz, Netherlands, and Scotland (109205); bronze copies of medals commemorating the inauguration of President Herbert Hoover, 1929, and the meetings of the Annual Assay Commission in 1927, 1928, 1929, and 1930 (2 copies each) (10 specimens) (109738); United States gold, silver, nickel, and bronze coins struck at the Denver, Philadelphia, and San Francisco mints in 1929 (32 specimens) (109850).

Public Health Service: Washington, D. C.: Set of 34 charts dealing with the subjects of adolescence and sex (106281); Rosebank, Staten Island; 3 geckos killed by fumigation on the S. S. *Exporter* (106642); (through Dr. Carroll Fox) 3 rats (108874).

TRISTAN, Señor J. FID. (See under Museo Nacional San Jose, Costa Rica).

TROJE, Dr. O. R., Birmingham, Ala.: Baby's ivory bracelet of about the period 1600 B. C., from a grave in Egypt containing a baby's mummy (106941).

TUCKERMAN, Mrs. WALTER R. (See under Miss Mary A. Shufeldt).

TURKEY, GOVERNMENT OF (through Ahmet Mouhtar Bey, Ambassador from Turkey, Washington, D. C.): Turkish military uniforms and accessories (185 specimens) (106236).

TUTTON, FREDERIC G., New York City: 2 natural-color photographs—"The Chinese Madonna" and "Carola Soya" (109527).

ULRICH, Dr. E. O., Washington, D. C.: Collection of invertebrate fossils from Ozarkian and Cambrian rocks of Quebec (106237). (See also under Dr. J. Brookes Knight.)

UNITED FRUIT CO., Boston, Mass. (through Dr. John R. Johnston): 3 plants from Santa Marta, Colombia (109533).

UNITED STATES PHARMACOPOEIAL CONVENTION (INC.), Philadelphia, Pa. (through Dr. E. Fullerton Cook): 14 books containing records of the revision committee of the United States Pharmacopoeia X for the decade 1920-1930 (110119). Deposit.

UNIVERSITETETS BOTANISKE MUSEUM, Copenhagen, Denmark (through Dr. Carl Christensen): 41 specimens of ferns from Haiti, collected by E. L. Ekman (109149); photograph and 6 specimens of ferns (110152). Exchange.

USINGER, R. L., Oakland, Calif.: Paratype of an insect (107750).

UTAH STATE AGRICULTURAL COLLEGE, Logan, Utah (through George F. Knowlton): 18 beetles from Utah (105943, 109242); 34 insects from Utah (106054, 106055, 107886, 109197, 109518); 4 flies from Utah (107601, 107624); 6 flies (108912).

UTAH, UNIVERSITY OF, Salt Lake City, Utah: 11 specimens of insects (107869).

VAIL, FLOYD, F. R. P. S., New York City: 6 bromoil prints, viz, "Dreamland," "Pigmy and Giant," "After the Storm," "Winter Landscape," "Yankee Farmer," and "The Patriarch" (108275).

VAIL, FLOYD EUGENE, New York City: 54 pictorial photographs for special exhibition during the month of May, 1930 (109860). Loan.

VALERIO, Prof. MANUEL, Liceo de Costa Rica, San Jose, Costa Rica: 21 specimens of fungi; 14 frogs; 32 specimens of fungi, and a collection of reptiles; 21 specimens of fungi, a fossil mollusk, 2 flat worms, and a

- VALERIO, Prof. MANUEL**—Contd.
marine annelid; 3 land and marine shells and 2 plants; 15 plants, 2 crabs, approximately 5 fragments of worm tubes, 1 salp, and 2 specimens of marine mollusks; 239 specimens of miscellaneous insects and 5 plants; 2 specimens of actinians; all from Costa Rica (106141, 106247, 106505, 106738, 106931, 107633, 109227, 109880).
- VANADIUM CORPORATION OF AMERICA, THE**, New York City: Tree chart showing the sources and uses of vanadium (108023).
- VANDERBILT UNIVERSITY**, Nashville, Tenn.: Fossil crab from Mississippi near Chewalla, Tennessee (107610).
- VANDUZEE, Prof. M. C.**, Buffalo, N. Y.: 3 specimens (paratypes) of 3 species of flies (88417). Exchange.
- VAN NESS, CHARLES G.**, Washington, D. C.: Group of tools used for wood, metal, and cloth working in the nineteenth century (109056).
- VAN VOORHIS, Mrs. IDA**, Cold Spring, N. Y. (through Mrs. Elizabeth M. Richmond, Washington, D. C.): A pair of glass breast cups of an early type (110341).
- VARRELMAN, Prof. F. A.**, Washington, D. C.: Semialbino English sparrow (107382).
- VAUX, Mrs. M. J.**, Bryn Mawr, Pa.: 5 specimens of minerals from French Creek mine, Chester County, Pa. (106425).
- VICTORIAS MILLING CO.**, Manila, P. I.: 3,484 pinned specimens of insects, 916 vials containing immature stages, 40 insects in alcohol, 97 paper folders containing insects, microscopic slides of insects, also plants, shells, reptiles and mammals, accumulated by Dr. W. Dwight Pierce (109780).
- VIGEANT, F. R.**, Sault Ste. Marie, Mich.: Weasel from Michigan (108376).
- VILLENEUVE, Dr. J.**, Rambouillet, France: 25 flies, representing 14 species, some new of the Museum collections, and all named by the sender (106776); 15 flies representing 10 species (109629). Exchange.
- VINSON, Dr. A. E.**, Port-au-Prince, Haiti: 7 lizards from Haiti (106145).
- VIRGINIA, COMMONWEALTH OF**, Department of Health, Richmond, Va. (through Dr. H. G. Grant) insect (106294); booklouse (106966).
- WACCAMAW LUMBER CORPORATION**, Bolton, N. C.: 2 boards of southern white cedar (108279).
- WAGNER, Mrs. D. A.**, Noatak, via Kotzebue, Alaska: 18 plants from the vicinity of Noatak, Alaska (107008).
- WAILES, GEORGE H.**, Nanaimo, British Columbia, Canada: 81 amphipods, approximately 50 copepods, 1 cumacean, 10 ostracods and a marine annelid (104421); approximately 20 amphipods from the crop of a ruddy duck, Cowichan Bay, Vancouver Island (104814); 18 schizopods (105646).
- WAINWRIGHT, COLBRAN J.**, Handsworth, Birmingham, England: 8 flies (109118). Exchange.
- WALCOTT, Mrs. CHARLES D.**, Washington, D. C.: 3 plants from California and Alberta (107639).
- WALKER, Mrs. ROBERT J.**, 3d, Washington, D. C.: Cream pitcher, sugar bowl, and 2 goblets owned by Robert J. Walker, Secretary of the Treasury 1845-1849 (110099). Loan.
- WALLING PROCESS (INC.), THE**, Washington, D. C.: Set of 9 progressive proofs; 4 other prints; and 2 pieces of bolting cloth, 1 new and the other used, all showing steps in the silk-stencil process of producing illustrations (106594); 13 examples of silk stencil printing (107395).
- WALLIS, WILLIAM W.**, Bradenton, Fla.: Marine annelid, an anemone, approximately 20 amphipods, approximately 30 porcellanid crabs from Sarasota Bay, Florida (106292).

- WALTER RATHBONE BACON SCHOLARSHIP, Smithsonian Institution (through Dr. Paul Bartsch): Collection of natural history specimens, comprising mammals, birds, 38 reptiles, 30 batrachians, fishes, mollusks, and plants made on the islands of the Caribbean Sea, 1928-29 (105892).
- WAR DEPARTMENT, Washington, D. C.:
- 2 Le Rhone rotary airplane engines, Nos. 4000 and 51499, and two 8 foot 6 inch 2-bladed airplane propellers, No. 34889 (102629).
- Army Medical School*: 3 specimens of worms taken from oysters (109588).
- WARD, MELBOURNE, Sydney, Australia: 11 crabs from Panama, collected by the donor (101115); 4 specimens of anomura and 7 of brachyura, collected by the donor in the Capricorn group, Australia (107005); 9 crabs from Australia (109129).
- WARD'S NATURAL SCIENCE ESTABLISHMENT, Rochester, N. Y.: 4 fossil specimens from the Ozarkian of Missouri (106423); 154 brachiopods (106424); 2 specimens of a large brachiopod from the Pliocene of Belgium (107431); Tertiary invertebrate fossils from five localities in Virginia and North Carolina (107729); slice weighing 20,500 grams of the Gladstone, Queensland, meteoric iron (107739); 3 mineral specimens—2 of vanadinite and 1 of lessingite (109501); 3 crystals of the mineral apatite (109894). Exchange.
- WARNER, Mrs. WORCESTER R., Tarrytown, N. Y.: A crystal ball, 12 $\frac{7}{8}$ inches in diameter and weighing 106 $\frac{3}{4}$ pounds, presented in memory of Worcester Reed Warner (109523).
- WASHINGTON, Dr. H. S., Washington, D. C.: 3 land shells from Brazil (109603).
- WASHINGTON GLIDER CLUB, Washington, D. C.: Glider rib of 5 feet chord and section N. A. C. A.-M18 of the type used by the donors in their secondary glider (109448).
- WATSON, Mrs. D., Pilot Station, Yukon, Alaska: 2 old ivory effigies (male and female) (107115).
- WEAVER, Mrs. CLARENCE, Washington, D. C.: Valentine of very early date, handmade, and owned by the great great-grandmother of Edwin L. Powell, Chester, Delaware County, Pa. (109085).
- WEBB, A. C., Paris, France: 46 etchings by Mr. Webb for special exhibition from March 24 to April 20, 1930 (109508). Loan.
- WEBB, Capt. T. W., Lake Placid, Fla.: Insect from Florida (106518).
- WEBBER, F. S., Holyoke, Mass.: 4 specimens, 3 species, of marine shells from Florida (109884).
- WEBSTER, A. B., Tanana, Alaska: Stone ax and a stone hammer from the middle Yukon (107111).
- WELCH, Mrs. GEORGE B., Washington, D. C.: 4 basketry articles and 3 horn spoons (107612).
- WELCH, JOHN H., Jr., Cambridge, Mass.: Crab, 8 lots of shrimps, and 1 lot of isopods, collected by the donor in the vicinity of Harvard laboratory at Soledad, Cienfuegos, Cuba (108035).
- WELLS, G. W., Jr., Alexandria, Va.: Great blue heron from Virginia (106439).
- WETMORE, Dr. A., Washington, D. C.: 6 specimens of sharp-tailed sparrow from Maryland (106672; 107374); 16 bird skins from Maryland (108049); specimen of migrant shrike from Virginia (109053); 19 birds from Bath, N. C. (109899).
- WEYMOUTH, A. ALLEN, Denver, Col. (through Dr. T. W. Stanton): Collection of Cretaceous invertebrates from the Aspen shale, near Kemmerer, Wyo. (109896).
- WHEELER, Prof. G. C., Grand Forks, N. Dak. (See under North Dakota, University of.)

- WHERRY, Dr. EDGAR T., Washington, D. C.: 3 photographs of a fern (106535); 28 plants from the United States (106648); fern from Maryland (108899): 2 specimens containing crystals of chalcopyrite from Bergen Hill, N. J., described by the donor in *American Mineralogist*, Volume 4, 1919 (109214); 6 amphipods from a spring on Blue Ridge east of Kobletown, Jefferson County, W. Va., collected by the donor (109555); plant from North Carolina (110104); plant (110371).
- WHITALL TATUM CO., Philadelphia, Pa.: Pair of drug-store window-show jars for addition to the history of pharmacy collection (107741).
- WHITE, Dr. C. T. (See under Botanic Museum and Herbarium, Botanic Gardens, Brisbane, Australia.)
- WHITE, Dr. DAVID. (See under Carnegie Institution of Washington, and Dr. Carl O. Dunbar.)
- WHITMAN, PAUL, Carmel, Calif.: 12 water colors and 19 etchings for special exhibition from November 4 to December 1, 1929 (107403). Loan.
- WHITTAKER, OSCAR, Hollyburn, British Columbia, Canada: 6 insects—hymenopterous parasites (110361).
- WHITTLESEY, Miss E. B. (See under Estate of Miss Florence A. Pardee.)
- WIGGINS, IRA L. (See under Stanford University.)
- WILCOX, J. (See under Oregon State Agricultural College.)
- WILCZEK, Dr. E. (See under Lausanne, Université de.)
- WILDER, Maj. STUART G., United States Army, Washington, D. C.: An Attu basket (106772).
- WILKINSON, D. S. (See under British Government, Imperial Bureau of Entomology, London, England.)
- WILLIAMS, CLARENCE R., Washington, D. C.: Plant (109598).
- WILLIAMS COLLEGE, Williamstown, Mass.: Type specimens of the Tribes Hill (Canadian) fossils (109201). Exchange.
- WILLIAMS, ROSWELL C., jr., Philadelphia, Pa.: 40 moths of the family HesperIIDae from Cuba (109566).
- WILLIAMSON, E. B., Bluffton, Ind. (through Dr. M. W. Lyon): Head of a ground squirrel from Bluffton, Ind. (106426).
- WILSON, Dr. C. B., Westfield, Mass.: 5,547 copepods, including the type lots of 15 species (109492).
- WINDSOR PRESS, THE, San Francisco, Calif.: 2 books of fine printing and bookbinding, entitled, respectively, "Medieval Latin Students' Songs" and "The Persian Garden" (106274).
- WISLOCKI, Dr. GEORGE, Baltimore, Md.: Bat (106985).
- WISNER, HARRY H., Rochester, N. Y.: Book entitled "The Paradise of Poets," by Andrew Lang, an example of letterpress printing printed by Charles W. Pitkin and Harry H. Wisner, of the Laboratory Press of the Carnegie Institute of Technology, Pittsburgh, Pa. (107419).
- WOLFSOHN, ROBERT, New York City: Model of the Fokker airplane, type DRI, used by Baron Manfred von Richtofen, famous German ace (108159).
- WOLTERS, EDWIN, Shiner, Tex.: 8 scales or bonelike plates of the common gar pike (107782).
- WOMEN'S LEAGUE OF THE UNITED SYNAGOGUE OF AMERICA, THE, New York City: 2 disk phonograph records of Passover melodies in the Hebrew language for the Seder service (110181).
- WOODBURY, A. M., Salt Lake City, Utah: Plant from Zion National Park (106650). (See also under Interior, Department of, National Park Service.)
- WOODRING, Dr. W. P., Pasadena, Calif.: 7 specimens (paratypes) of 2 species of fossil Foraminifera (109895).
- WOOTEN, Capt. H. C., Washington, D. C.: Billet of teakwood from hull of the convict ship *Success* and book-

- WOOTEN, Capt. H. C.—Continued.
let giving history of the vessel (110559).
- WORCESTER POLYTECHNIC INSTITUTE, Alden Hydraulic Laboratory, Worcester, Mass. (through Prof. Kenneth G. Merriam): Collection of 9 aircraft propellers representative of the types used by Prof. David L. Gallup in experiments conducted at Worcester Polytechnic Institute in 1911 (109470).
- WRITING PAPER MANUFACTURERS' ASSOCIATION, Springfield, Mass.: Series of specimens and illustrations showing the manufacture of rag-content, loft-dried papers (108046).
- WU, Dr. CHENFU F. (See under Yenching University.)
- YALE UNIVERSITY, School of Forestry, New Haven, Conn. (through Prof. Samuel J. Record): 598 wood specimens from Liberia, New Caledonia, Sweden, Australia, Japan, India, tropical America, and other localities; 17 plants from Ecuador; plant from Australia (107767; 110313; 110386 exchange); 28 plants from British Honduras, and 299 plants from Liberia (107231; 108386 exchange); (through G. P. Cooper) 3 study samples of Philippine woods (108889 exchange); 86 plants from Liberia (109122).
- YARDLEY, Mrs. A. T., Ellicott City, Md.: 2 illustrated autograph letters by F. S. Church to C. Y. Turner, each of whom was a well-known artist (106917).
- YENCHING UNIVERSITY, Peiping, China (through Dr. Chenfu F. Wu): 47 beetles from China (106143, 106154).
- YOUNG, ANDREW L., Washington, D. C.: Early electric push-button switch (106987).
- ZAPPULLA, FRANK S., Washington, D. C.: Knights Templars sword, belt, and baldric of the latter part of the nineteenth century (108507); a turned woodbox, palm leaf token, small silk bag, and a whistle, all from India; 20 specimens of miscellaneous sea shells, 3 engravings, souvenir glass, and 13 coins (109139); 2 canes and 4 sea shells (109839); 2 English china plates, 3 early American handbells, a carved wooden fork, carved wooden spoon, 2 daguerreotypes, and a daguerreotype case (109879); old Chinese lacquered tray, Mohave beaded necklace, Waterford glass conserve bowl, and a souvenir saucer of the Centennial Exhibition (110311).
- ZELIFF, C. C., Ithaca, N. Y.: Type specimen of a cestode worm (110184).
- ZIEGLER, L. H., Redkey, Ind.: 2 fungi from Indiana (109794).
- ZOOLOGICAL MUSEUM, Balboa Park, San Diego, Calif. (through Dr. T. S. Palmer): 2 skins of Kuhl's lory (108039).
- ZOOLOGISCHES MUSEUM DER UNIVERSITÄT, Berlin, Germany: Parrot (110156). Exchange.

LIST OF PUBLICATIONS ISSUED BY THE UNITED STATES NATIONAL MUSEUM DURING THE FISCAL YEAR 1929-30

REPORT

Report on the progress and conditions of the United States National Museum for the year ended June 30, 1929.

8vo., pp. i-ix, 1-207, frontispiece.

PROCEEDINGS

Proceedings of the United States National Museum. Volume 73.

8vo., pp. i-xv, 1-751, arts. 1-24, pls. 1-97, 106 figs., 1 map.

Proceedings of the United States National Museum. Volume 74.

8vo., pp. i-xii, 1-591, arts. 1-26, pls. 1-49, 25 figs.

Proceedings of the United States National Museum. Volume 75.

8vo., pp. i-xiii, 1-680, arts. 1-26, pls. 1-84, 57 figs.

BULLETINS

No. 76. Asteroidea of the North Pacific and adjacent waters. Part 3. Forcipulata (concluded). By Walter Kenrick Fisher. Ry. Oct., pp. i-iii, 1-356, pls. 1-93, 3 figs.

No. 100, vol. 9. Contributions to the biology of the Philippine Archipelago and adjacent regions. Bryozoa of the Philippine region. By Ferdinand Canu and Ray S. Bassler.

8vo., pp. i-xi, 1-685, pls. 1-94, 224 figs.

No. 100, vol. 10. Contributions to the biology of the Philippine Archipelago and adjacent regions. The fishes of the families Amiidae, Chandidae, Duleidae, and Serranidae, obtained by the United States Bureau of Fisheries steamer *Albatross* in 1907 to 1910, chiefly in the Philippine Islands and adjacent seas. By Henry W. Fowler and Barton A. Bean.

8vo., pp. i-ix, 1-334, 27 figs.

No. 104. The Foraminifera of the Atlantic Ocean. Part 7. Nonionidae, Camerinidae, Peneroplidae, and Alveolinellidae. By Joseph Augustine Cushman.

8vo., pp. i-vi, 1-79, pls. 1-18.

No. 147. Archeological and historical investigations in Samana, Dominican Republic. By Herbert W. Krieger.

8vo., pp. i-iv, 1-91, pls. 1-27, 2 maps.

No. 148. Collections of objects of religious ceremonial in the United States National Museum. By Immanuel Moses Casanowicz.

8vo., pp. i-viii, 1-207, pls. 1-75, frontispiece.

No. 149. Composition and structure of meteorites. By George P. Merrill.

8vo., pp. i-vi, 1-62, pls. 1-32, frontispiece.

- No. 150. Revision of the fishes of the family Liparidae. By Victor Burke.
8vo., pp. i-xii, 1-204, 110 figs.
- No. 151. East African reptiles and amphibians in the United States National Museum. By Arthur Loveridge.
8vo., pp. i-v, 1-135, pl. 1.
- No. 152. The canceroid crabs of America of the families Euryalidae, Portunidae, Atelecyclidae, Cancridae and Xanthidae. By Mary J. Rathburn.
8vo., pp. i-xvi, 1-609, pls. 1-230, 85 figs.
- No. 153. Birds collected by the Childs Frick expedition to Ethiopia and Kenya Colony. Part 1. Non-Passeres. By Herbert Friedmann.
8vo., pp. i-xiii, 1-516, pls. 1-12, 22 figs.

**CONTRIBUTIONS FROM THE UNITED STATES NATIONAL
HERBARIUM**

- Vol. 22. Systematic plant studies—chiefly tropical American.
8vo., pp. i-xiv, 1-777, pls. 1-64, 87 figs.

PAPERS PUBLISHED IN SEPARATE FORM

FROM THE BULLETINS

- From Volume 24. Contributions from the United States National Herbarium.
Part 9. The grasses of Central America. By A. S. Hitchcock.
8vo., pp. i-xvi, 557-762.
- From Volume 26. Contributions from the United States National Herbarium.
Part 4. The Piperaceae of Costa Rica. By William Trelease.
8vo., pp. i-xii, 115-226.
- Part 5. Notes on certain type specimens of American Asteraceae in European Herbaria. By S. F. Blake.
8vo., pp. i-ix, 227-263.

FROM VOLUME 75 OF THE PROCEEDINGS

- No. 2790. A revision of the beetles of the Tenebrionid Tribe Usechini, with descriptions of a new genus and new species. By Frank E. Blaisdell, sr.
Art. 19, pp. 1-14, pl. 1, figs. 1, 2.

FROM VOLUME 76 OF THE PROCEEDINGS

- No. 2802. Three new land shells of the genus *Oreohelix* from Arizona. By William B. Marshall.
Art. 5, pp. 1-3, pl. 1.
- No. 2803. New species of Buprestid beetles from Costa Rica. By W. S. Fisher.
Art. 6, pp. 1-20.
- No. 2804. *Briarosaccus callosus*, a new genus and new species of a Rhizocephalan parasite of *Lithodes agassizii* Smith. By H. Boschma.
.Art. 7, pp. 1-8, figs. 1-8.
- No. 2805. A new variety of the hexactinellid sponge, *Rhabdocalyptus dawsoni* (Lambe) and the species of *Rhabdocalyptus*. By H. V. Wilson and J. T. Penney.
Art. 8, pp. 1-9, pls. 1, 2.

- No. 2806. New Lower and Middle Cambrian crustacea. By Charles E. Resser.
Art. 9, pp. 1-18, pls. 1-7.
- No. 2807. Notes on the species of myctophine fishes represented by type specimens in the United States National Museum. By Albert Eide Parr.
Art. 10, pp. 1-47, figs. 1-21.
- No. 2808. Revision of the two-winged flies of the genus *Coelopa* Meigen in North America. By J. M. Aldrich.
Art. 11, pp. 1-6.
- No. 2809. Two new species of trematodes of the genus *Parametorchis* from fur-bearing animals. By Emmett W. Price.
Art. 12, pp. 1-5, figs. 1, 2.
- No. 2810. The Bryozoan fauna of the Galapagos Islands. By Ferdinand Canu and Ray S. Bassler.
Art. 13, pp. 1-78, pls. 1-14, figs. 1-13.
- No. 2811. The Middle Devonian Traverse group of rocks in Michigan, a summary of existing knowledge. By Erwin R. Pohl.
Art. 14, pp. 1-34, pls. 1, 2.
- No. 2812. New genera and species of muscoid flies. By J. M. Aldrich.
Art. 15, pp. 1-13.
- No. 2813. Öolites or cave pearls in the Carlsbad Caverns. By Frank L. Hess.
Art. 16, pp. 1-5, pls. 1-8.
- No. 2814. Contribution to the taxonomy of Asiatic wasps of the genus *Tiphia* (Scoliidae). By H. W. Allen and H. A. Jaynes.
Art. 17, pp. 1-105, pls. 1-4, fig. 1.
- No. 2815. Two new mollusks of the genera *Ostrea* and *Exogyra* from the Austin chalk, Texas. By Lloyd W. Stephenson.
Art. 18, pp. 1-6, pls. 1-3.
- No. 2816. The Foraminifera of the Ripley formation on Coon Creek, Tennessee. By Willard Berry and Louis Kelley.
Art. 19, pp. 1-20, pls. 1-3.
- No. 2817. Notes on the muscoid flies of the genera *Opelousia* and *Opsodexia* with the description of three new species. By H. J. Reinhard.
Art. 20, pp. 1-9.
- No. 2818. Ordovician trilobites of the family Telephidae and concerned stratigraphic correlations. By E. O. Ulrich.
Art. 21, pp. 1-101, pls. 1-8.
- No. 2819. *Mitrospira*, A new Ordovician gasteropod genus. By Edwin Kirk.
Art. 22, pp. 1-6, pls. 1-3.
- No. 2820. A new fossil coral from the Cretaceous of Texas. By J. Edward Hoffmeister.
Art. 23, pp. 1-3, pls. 1, 2.
- No. 2821. A systematic classification for the birds of the world. By Alexander Wetmore.
Art. 24, pp. 1-8.
- No. 2822. New species of Ichneumon-flies and taxonomic notes. By R. A. Cushman.
Art. 25, pp. 1-18.

- No. 2823. A nearly complete carapace of a fossil turtle, *Amyda virginiana* (Clark). By W. Gardner Lynn.
Art. 26, pp. 1-4, pls. 1, 2.

FROM VOLUME 77 OF THE PROCEEDINGS

- No. 2824. Two new species of trematode worms of the genus *Eucotyle* from North American birds. By Emmett W. Price.
Art. 1, pp. 1-4, figs. 1, 2.
- No. 2825. New land and fresh-water mollusks from South America. By William B. Marshall.
Art. 2, pp. 1-7, pls. 1, 2.
- No. 2826. A revision of the North American species of Ichneumon-flies of the genus *Odontomerus*. By R. A. Cushman.
Art. 3, pp. 1-15, figs. 1-4.
- No. 2827. The lysianassid amphipod crustaceans of Newfoundland, Nova Scotia, and New Brunswick in the United States National Museum. By Clarence R. Shoemaker.
Art. 4, pp. 1-19, figs. 1-10.
- No. 2830. The caudal molt of certain Coraciiform, Coliiform, and Piciform birds. By Herbert Friedmann.
Art. 7, pp. 1-6.
- No. 2831. Synonymical and descriptive notes on parasitic Hymenoptera. By A. B. Gahan.
Art. 8, pp. 1-12.
- No. 2832. Three new genera and five new species of parasitic crustacea. By H. F. Nierstrasz and G. A. Brender à Brandis.
Art. 9, pp. 1-9, figs. 1-20.
- No. 2833. A nearly complete shell of the extinct turtle, *Trachemys sculpta*. By Charles W. Gilmore.
Art. 10, pp. 1-8, pls. 1-3, figs. 1, 2.
- No. 2834. The herpetological collections made by Dr. Hugh M. Smith in Siam from 1923 to 1929. By Doris M. Cochran.
Art. 11, pp. 1-39, figs. 1-6.

LIST OF PAPERS BASED WHOLLY OR IN PART ON THE
COLLECTIONS IN THE UNITED STATES NATIONAL
MUSEUM, PUBLISHED BY THE MUSEUM AND ELSE-
WHERE DURING THE FISCAL YEAR 1929-30

[Abel, Charles.]

The famous Eickemeyer collection now at the Smithsonian Institute: Abel's
Photographic Weekly, vol. 45, no. 1164, Apr. 12, 1930, p. 454, 1 fig.

Acheson Oildag Co.

The Edward Goodrich Acheson exhibit at the Smithsonian Institution, Wash-
ington, D. C.: Privately printed, May, 1930, pp. 17, 6 pls.

Aellen, Paul.

Beitrag zur Systematik der Chenopodium-Arten Amerikas, vorwiegend auf
Grund der Sammlung des United States National Museum in Washington,
D. C.: II Repert. Sp. Nov. Fedde, vol. 26, nos. 709-717, May 13, 1929, pp.
119-160.

Aldrich, J. M.

Revision of the two-winged flies of the genus *Coelopa* Meigen in North Amer-
ica: Proc. U. S. Nat. Mus., vol. 76, art. 11, no. 2808, Nov. 16, 1929, pp. 1-6.

New genera and species of muscoid flies: Proc. U. S. Nat. Mus., vol. 76, art.
15, no. 2812, Nov. 16, 1929, pp. 1-13.

Notes on synonymy of Diptera, no. 4: Proc. Ent. Soc. Washington, vol. 32,
no. 2, February, 1930, pp. 25-28.

Collecting flies in northern Europe: "Expl. and Field Work of the Smithsonian
Inst. in 1929," no. 3060, Apr. 7, 1930, pp. 113-118, figs. 93-100.

Alexander, Charles P.

New species of crane flies from South America. Part 3. (Family Tipulidae,
order Diptera): Ann. Ent. Soc. America, vol. 22, no. 4, December, 1929,
pp. 768-788.

Alicata, Joseph E.

The occurrence of *Dirofilaria scapiceps* in rabbits: Journ. Parasitol., vol. 15,
no. 4, June, 1929, p. 287.

Globidium in the abomasum of American sheep: Journ. Parasitol., vol. 16, no.
3, March, 1930, pp. 162-163.

(See under Schwartz, Benjamin.)

Allen, H. W., and H. A. Jaynes.

Contribution to the taxonomy of Asiatic wasps of the genus *Tiphia* (Scoliidae):
Proc. U. S. Nat. Mus., vol. 76, art. 17, no. 2814, Mar. 5, 1930, pp. 1-105,
pls. 1-4.

Bailey, Harold H.

[Descriptions of new races of birds]: The Bailey Museum and Library of
Natural History, Bull. no. 4, Apr. 1, 1930 (published March 20), 4 pages.

Baker, C. E. (See under C. W. Stiles.)

Balduf, W. V.

Tetrastichus verrucarii, new species, a chalcid parasite of *Neuroterus* (Cynipidae) on bur oak: *Can. Ent.*, vol. 61, no. 10, October, 1929, pp. 221, 222, figs. 1-5.

Ball, William Howard.

Notes from Washington, D. C.: *Auk*, vol. 46, no. 4, October, 1929, p. 555.
Short-billed Marsh Wren (*Cistothorus stellaris*) in Maryland: *Auk*, vol. 47, no. 2, April, 1930, p. 262.

Bancroft, Griffing.

A new Pacific race of the gull-billed tern: *Trans. San Diego Soc. Nat. Hist.*, vol. 5, no. 19, Dec. 10, 1929, pp. 283-286.

Bangs, Outram.

Types of birds now in the Museum of Comparative Zoölogy: *Bull. Mus. Comp. Zoöl.*, vol. 70, no. 4, March, 1930, pp. 147-426.

— and **Josselyn van Tyne.**

Descriptions of five new Indo-Chinese birds: *Field Mus. Nat. Hist.*, pub. 272, *Zool. ser. vol. 18*, no. 1, Apr. 9, 1930, pp. 1-4.

Barbour, Thomas.

The Anoles. I. The forms known to occur on the neotropical islands: *Bull. Mus. Comp. Zoöl.*, vol. 70, no. 3, April, 1930, pp. 105-144.

Bartsch, Paul.

Report upon the collection of marine mollusks made by Prof. Dr. K. Derjugin in the Gulf of Peter the Great: *Inst. Hydrologique, Expls. des Mers d'U. R. S. S.*, fasc. 10. 1929. pp. 131-140, pls. 1-4.

Explorations for mollusks in the West Indies: *Expl. and Field Work of the Smithsonian Inst.*, 1929, pub. no. 3060, Apr. 7, 1930, pp. 99-112, figs. 81-92.
Teredolithus, a new collective group name: *Science*, vol. 71, no. 1844, May 2, 1930, pp. 460, 461.

Bassler, Ray S.

Paleontologic work in Europe: *Expl. and Field Work of the Smithsonian Inst.*, 1929, pub. no. 3060, Apr. 7, 1930, pp. 9-16, figs. 6-11.

(See also under F. Canu.)

Bean, Barton A. (See under Henry W. Fowler.)**[Beardsley, A. H.]**

Smithsonian Institution acquires Eickemeyer photographs: *Photo-Era Magazine*, vol. 64, no. 5, May, 1930, p. 283.

Berry, Willard, and Louis Kelley.

The Foraminifera of the Ripley formation on Coon Creek, Tennessee: *Proc. U. S. Nat. Mus.*, vol. 76, art. 19, no. 2816, Dec. 19, 1929, pp. 1-20, pls. 1-3.

Black, O. F. (See under W. W. Eggleston.)**Blaisdell, Frank E., sr.**

A revision of the beetles of the tenebrionid tribe Usechini, with descriptions of a new genus and new species: *Proc. U. S. Nat. Mus.*, vol. 75, art. 19, no. 2790, Sept. 25, 1929, pp. 1-14, pl. 1, figs. 1, 2.

Revision of the genus and species of *Dinacoma* with description of a new species (Coleoptera: Scarabaeidae): *Pan-Pacific Ent.*, vol. 6, no. 4, April, 1930, pp. 171-177, figs. 1-14.

Blake, S. F.

New Asteraceae from the United States, Mexico, and Honduras: Journ. Washington Acad. Sci., vol. 19, no. 13, July 19, 1929, pp. 268-281, fig. 1.

Two Cyperaceae new to the Boston district: Rhodora, vol. 31, no. 369, Sept. 16, 1929, pp. 191-192.

On the names of certain species of *Deguelia* (Derris): Journ. Washington Acad. Sci., vol. 19, no. 21, Dec. 19, 1929, pp. 472-475.

Notes on certain type specimens of American Asteraceae in European herbaria: Contr. U. S. Nat. Herb., vol. 26, part 5, Mar. 10, 1930, pp. 227-263.

A new *Polygala* from Colombia and Bolivia: Proc. Biol. Soc. Washington, vol. 43, Mar. 12, 1930, pp. 5, 6.

[Blumann, Sigismund.]

Rudolf Eickemeyer endowment: Camera Craft, vol. 37, no. 5, May, 1930, p. 247, 1 fig.

Bond, James.

A new tanager from the Massif de la Selle, Haiti: Proc. Acad. Nat. Sci. Philadelphia, vol. 81, Oct. 3, 1929, pp. 473, 474.

Boschma, H.

Briarosaccus callosus, a new genus and new species of a Rhizocephalan parasite of *Lithodes agassizii* Smith. Proc. U. S. Nat. Mus., vol. 76, art. 7, no. 2804, Mar. 30, 1930, pp. 1-8, figs. 1-8.

Böving, Adam G.

Taxonomic characters for the identification of the mature larvae of *Pissodes strobi* Peck and *Pissodes approximatus* Hopkins (Fam. Curculionidae): Proc. Ent. Soc. Washington, vol. 31, no. 9, December, 1929, pp. 182-186, pl. 8, text figs. 1-3.

Description of the larva of *Cerotoma trifurcata* Forster (Coleoptera: Chrysomelidae): Proc. Ent. Soc. Washington, vol. 32, no. 4, April, 1930, pp. 51-58, pl. 2.

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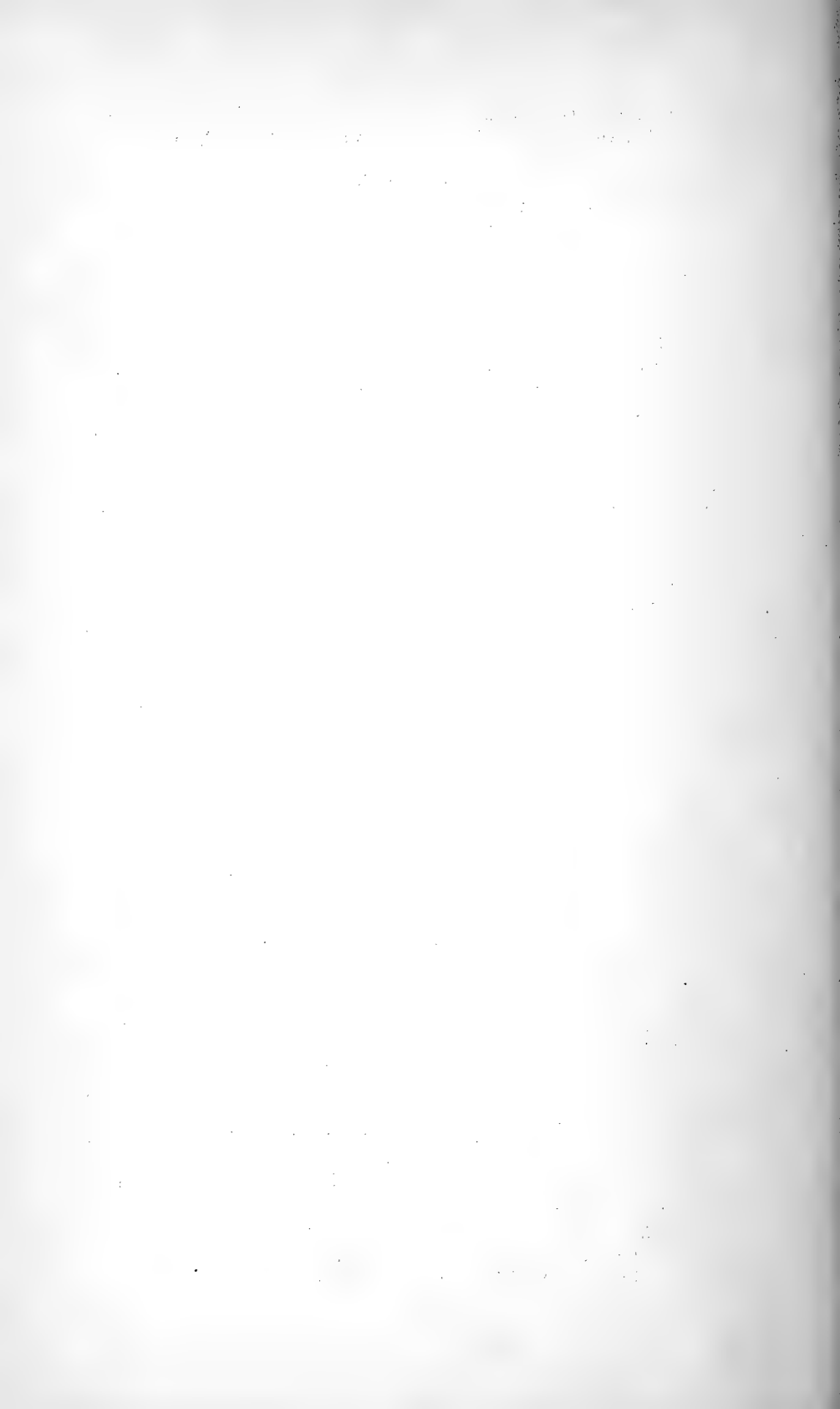
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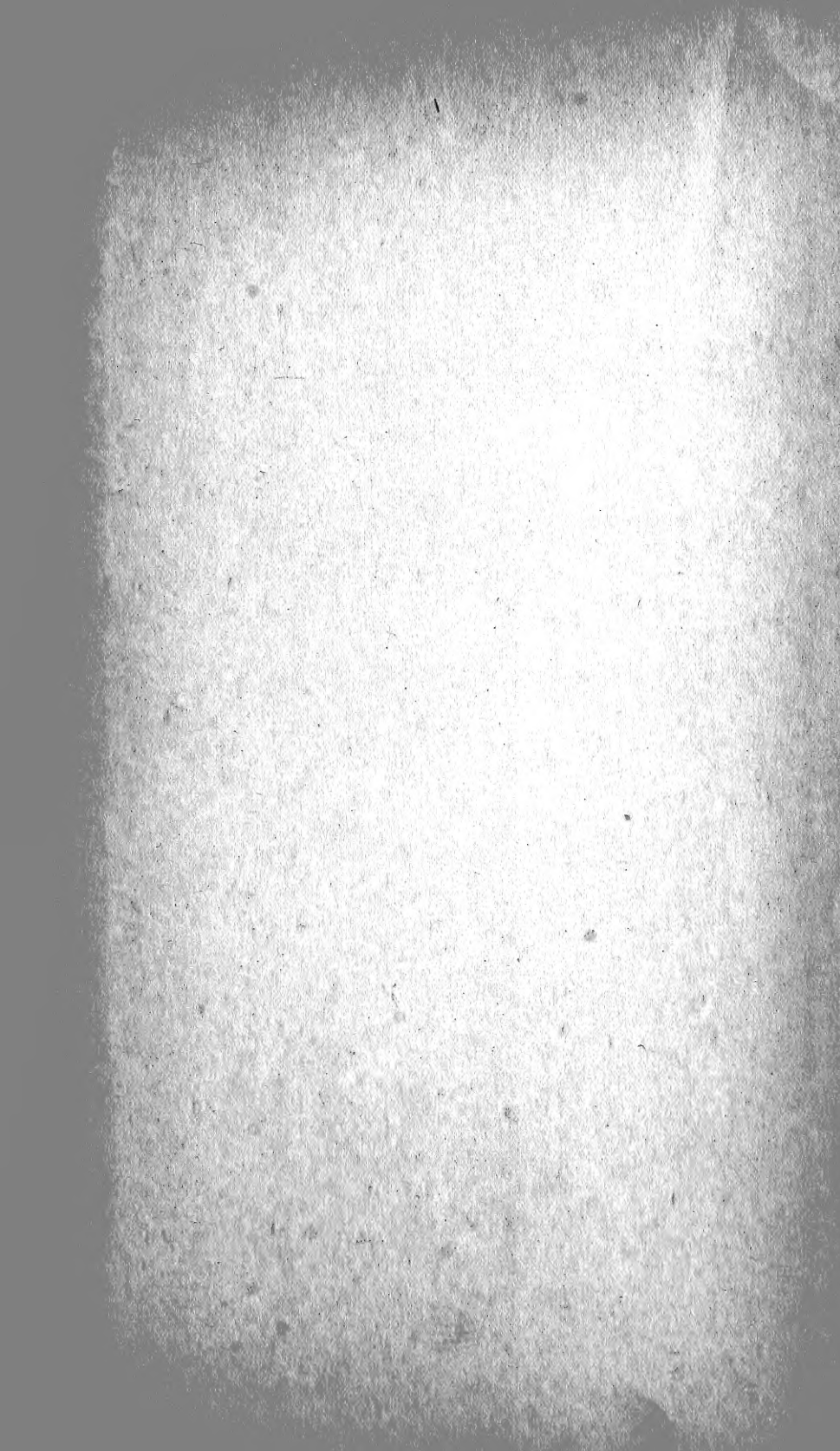
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